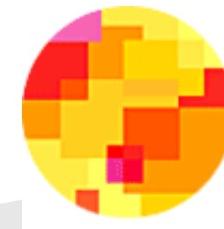


## The Burden of Mental Illness

Prof. Dr. Jair de Jesus Mari

Escola Paulista de Medicina - Universidade Federal de São Paulo  
São Paulo 2018



# Medidas da Carga da Doença

## YLD (YEARS LIVED WITH DISABILITY)

### AVI (ANOS VIVIDOS COM INCAPACIDADE)

Se um homem fica paraplégico aos 30 anos  
Expectativa de vida=80 anos, peso da  
incapacidade para a paraplegia=0,5 (0 a 1,0)

AVI= $50 \times 0,5 = 25$  anos vividos com  
incapacidade

## YLL (YEARS of LIFE LOST)

### AVP (ANOS DE VIDA PERDIDOS)

Expectativa de vida= 80 (M), 82,5 (F)

Se um homem morre aos 30 anos,  
AVP=  $80 - 30 = 50$  anos

## DALY (Disability adjusted lost years)

### AVPAI (ANOS DE VIDA PERDIDOS AJUSTADOS POR INCAPACIDADE)

↳ Medida de mortalidade combinada com a medida de morbidade

$$\text{DALY} = \text{YLD} + \text{YLL}$$

(“one DALY is one lost year of healthy life”)

# World Bank and the WHO

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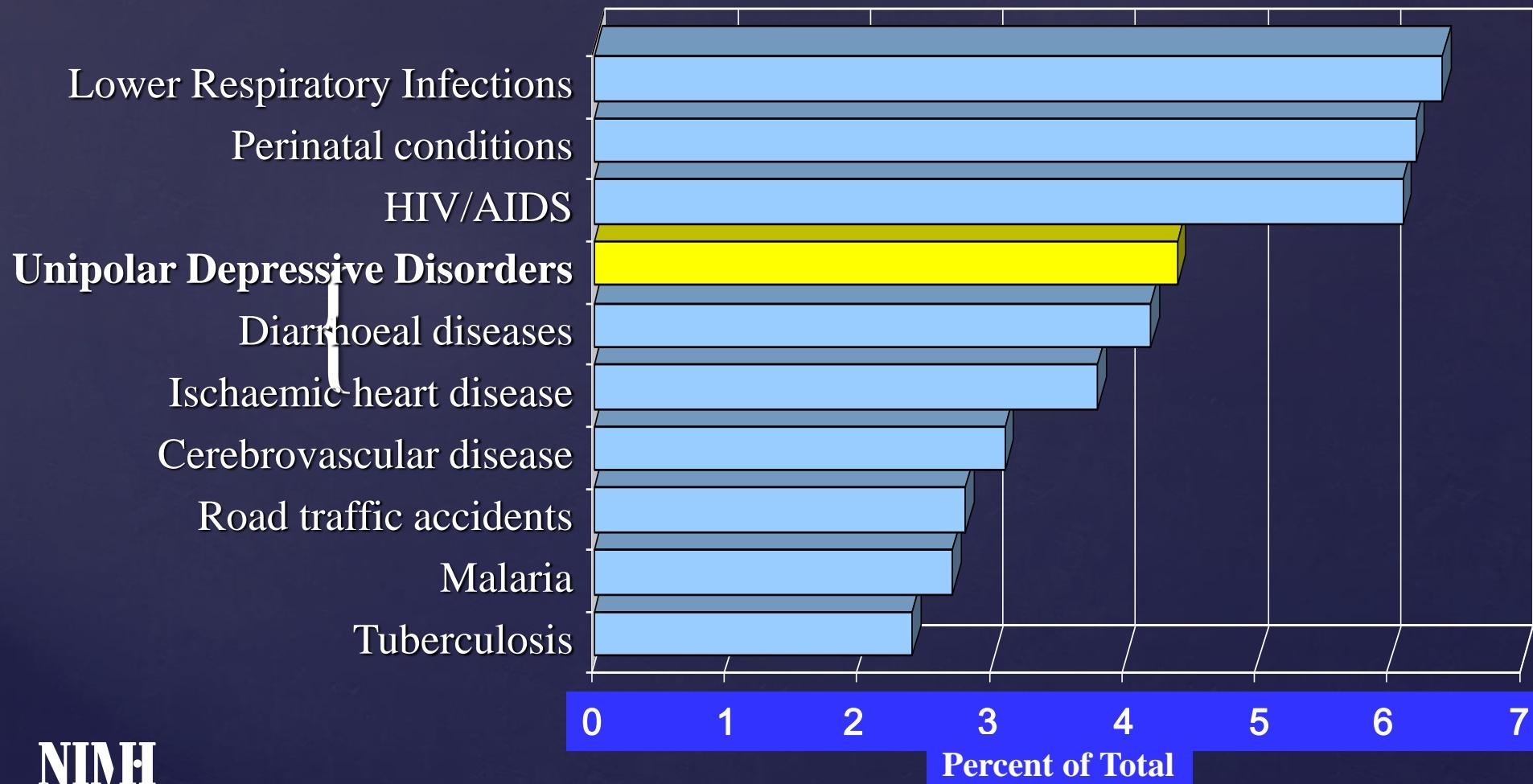
- Global Burden of Disease
- To measure both premature death and disability, a single measure was developed:

**Disability Adjusted Life Year**  
- DALY -

- One DALY is one lost year of healthy life.

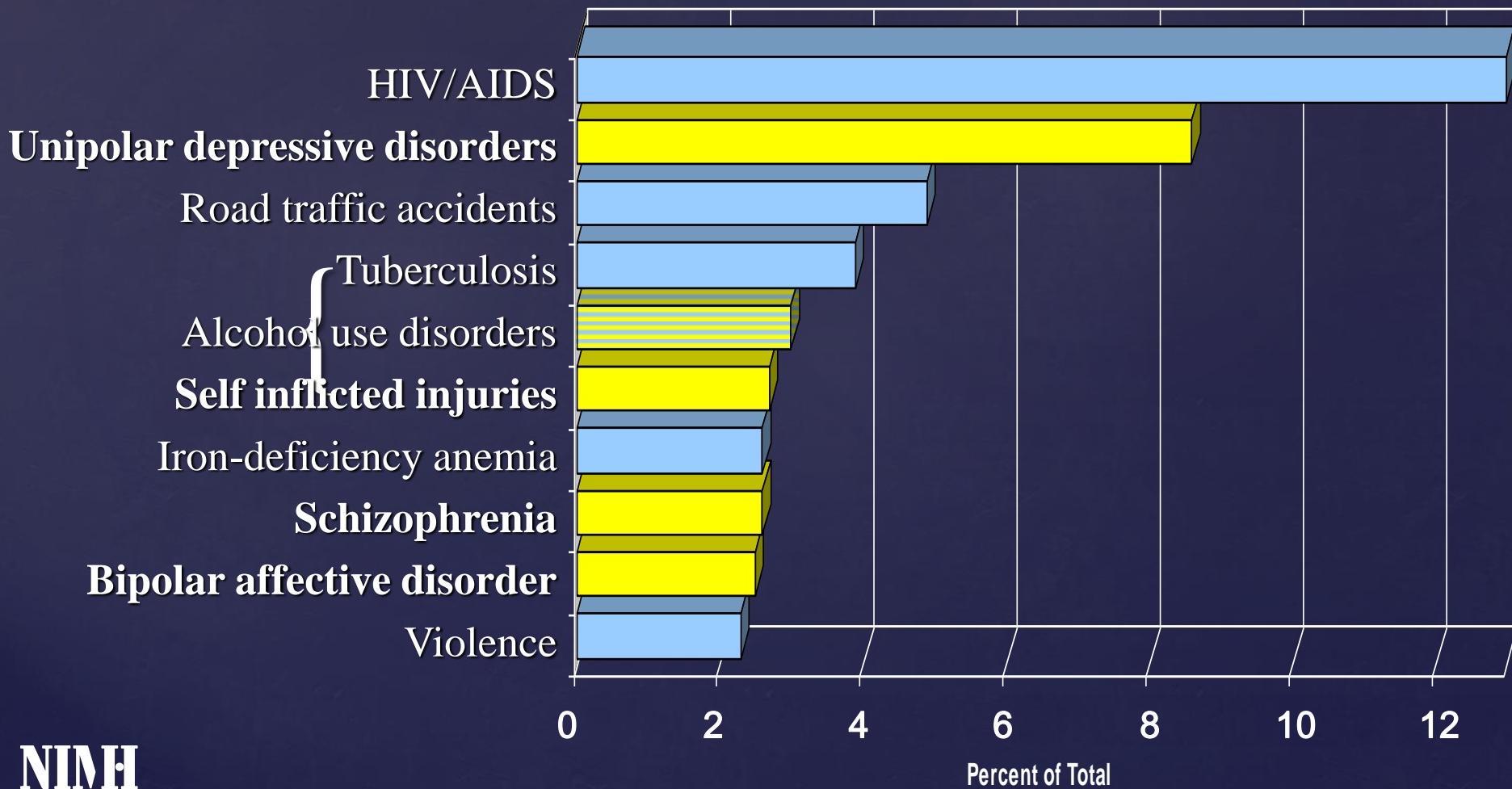
# Disease Burden by Illness - DALY World, 2000

## All Ages

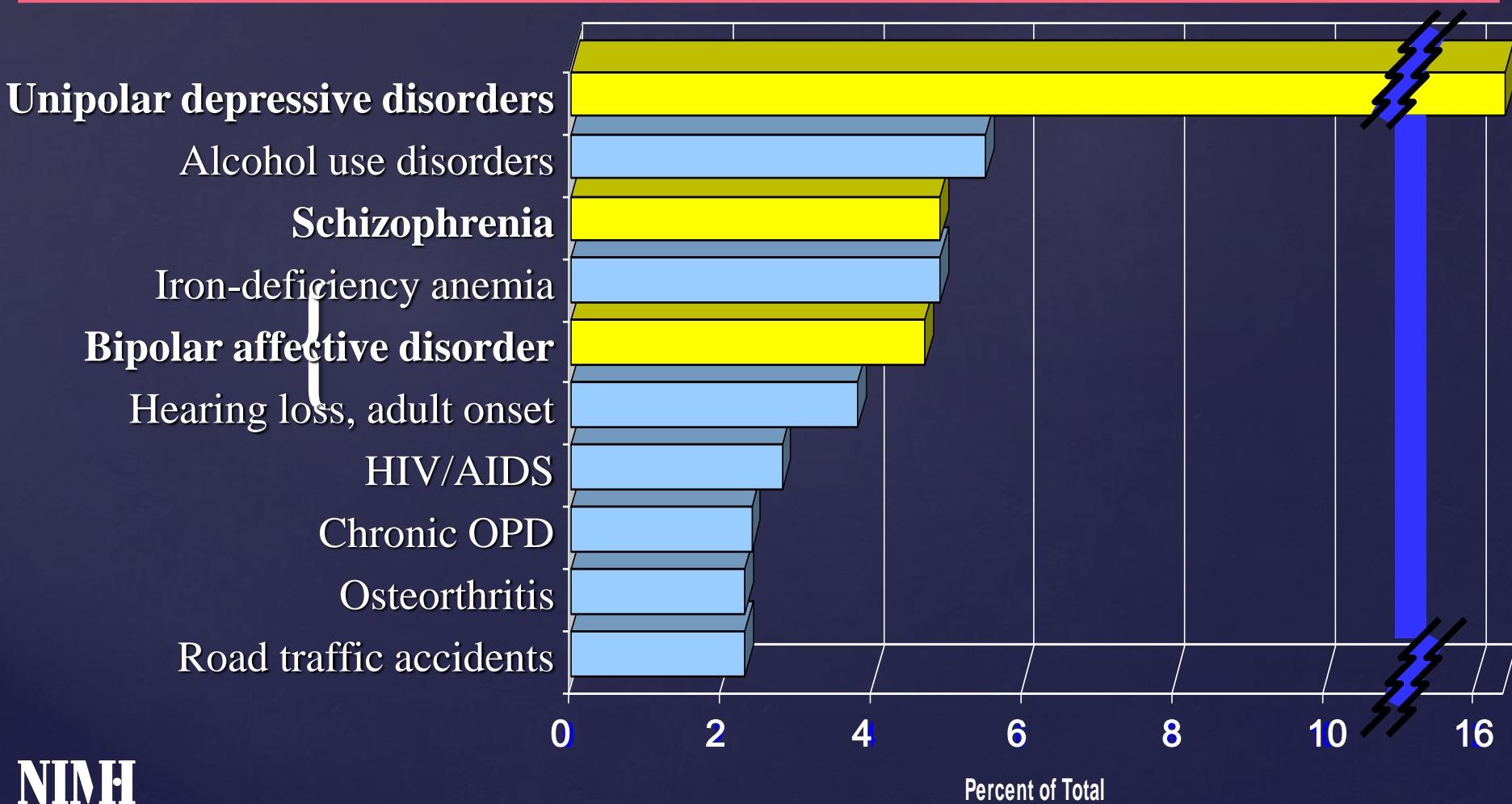


# Disease Burden by Illness - DALY World, 2000

## *15-44 year olds*



# Disease Burden by Illness - DALY United States, Canada and Western Europe, 2000 *15-44 year olds*



# Disease Burden by Illness - DALY

## United States, Canada and Western Europe, 2000

### All Ages

Source: WHO – World Health Report 2001

	Percent of total DALYs
Cardiovascular diseases	17.0
Mental Illness*	14.8
Malignant neoplasms (cancer)	14.4
All Injuries	7.3
Alcohol and Drug Use Disorders	7.2
All respiratory diseases	5.4
Digestive diseases	4.2
Musculoskeletal diseases	4.2

\*Includes self-inflicted injuries

# Causes of Disability

## United States, Canada and Western Europe, 2000

### All Ages

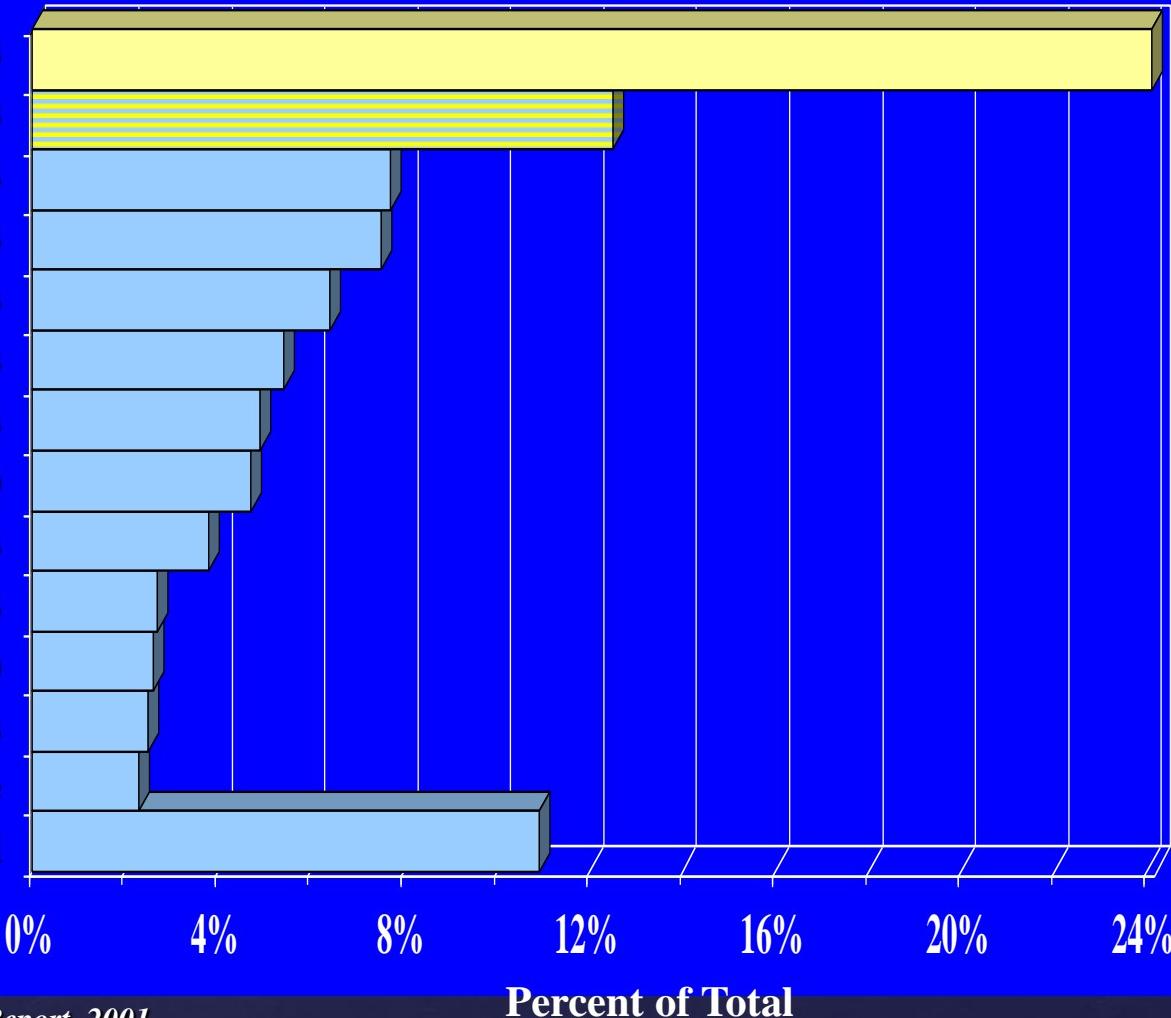
	<u>Percent of total YLDs</u>
Unipolar Depression	17.1
Alcohol and Drug Use Disorders	12.5
Bipolar Affective Disorder	2.1
Schizophrenia	2.1
Other Neuropsychiatric Conditions	2.0
Insomnia (primary)	1.1
Panic Disorder	1.1
Obsessive Compulsive Disorder	0.9
Post Traumatic Stress Disorder	0.7
Self-Inflicted Injuries	0.2
<b>Mental Illness Total</b>	<b>39.8</b>

# Causes of Disability

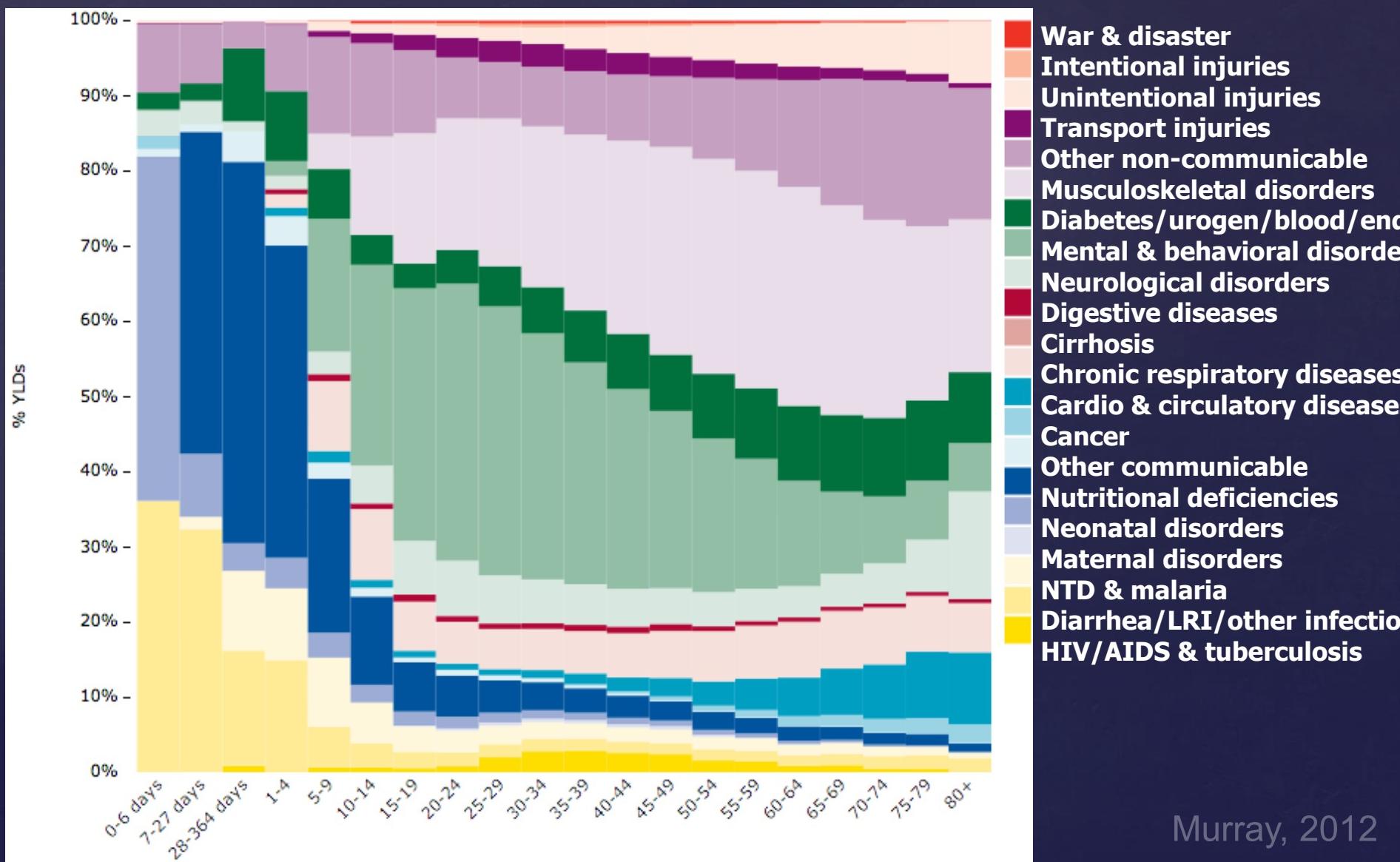
## United States, Canada and Western Europe, 2000

*All Ages*

- Mental Illnesses
- Alcohol and Drug Use Disorders
- Alzheimer's Disease and Dementias
- Musculoskeletal Diseases
- Respiratory Diseases
- Cardiovascular Diseases
- Sense organ Diseases
- Injuries (Disabling)
- Digestive Diseases
- Communicable Diseases
- Cancer (Malignant neoplasms)
- Diabetes
- Migraine
- All Other Conditions Combined

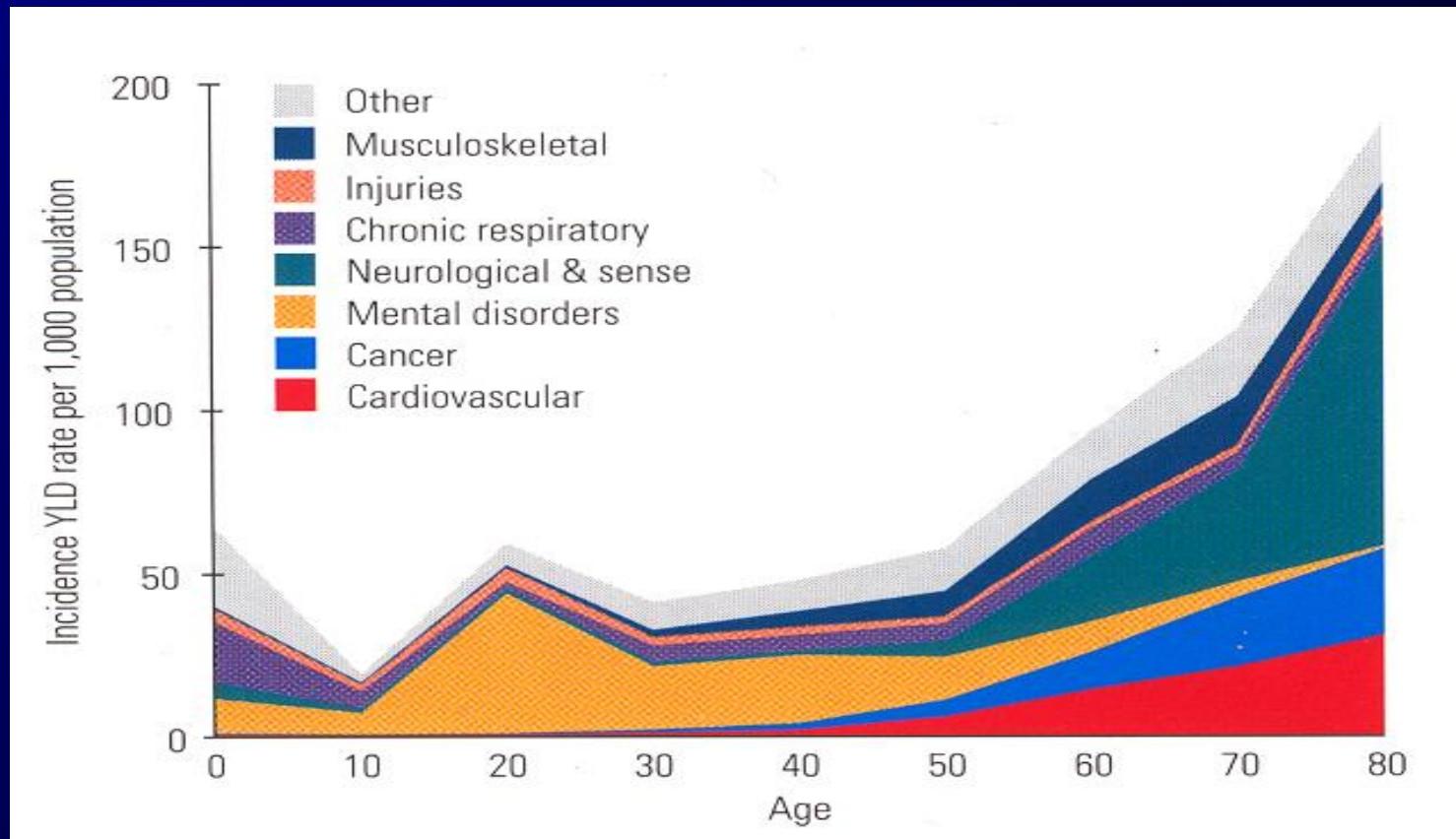


# Mental & Behavioral Disorders: Leading Cause of Disability Globally



Murray, 2012

# YLD - Years Lost due to Disability



# Brazil Addressing the Challenge of Non-communicable Diseases in Brazil

November 15, 2005

Brazil Country Management Unit  
Human Development Sector Management Unit  
Latin America and the Caribbean Region



# Years of Life Lost (YLL), Years Lost Due to Disability (YLD), and Disability-adjusted Life Years (DALY) Rates\* and Percent, Brazil, 1998

Causes	YLL		YLD		DALY	
	Rate	%	Rate	%	Rate	%
ALL	111	100	120	100	232	100
Communicable, maternal, perinatal, nutritional	31	28	24	20	54	24
Infectious, parasitic	11	10	10	9	21	9
Respiratory infections	6	5	2	2	8	4
Maternal	< 1	0	5	4	6	2
Perinatal	12	11	3	2	15	6
Nutritional	1	1	3	3	5	2
Non-communicable	64	58	90	75	154	66
Cancer	13	12	1	1	15	6
Diabetes	3	3	9	7	12	5
Neuro-psychiatric	2	2	41	34	43	19
Cardiovascular	28	25	3	3	31	13
Chronic respiratory	5	5	14	11	19	8
Other**	13	10			34	15
Injuries	17	15	7	6	24	10
Unintentional injuries	9	8	6	5	15	6
Intentional injuries	9	8	< 1	< 1	9	4

\*per 1000 inhabitants

\*\*Includes benign neoplasias, endocrine, sensory, digestive, genito-urinary, skin, musculoskeletal, oral, and congenital disorders

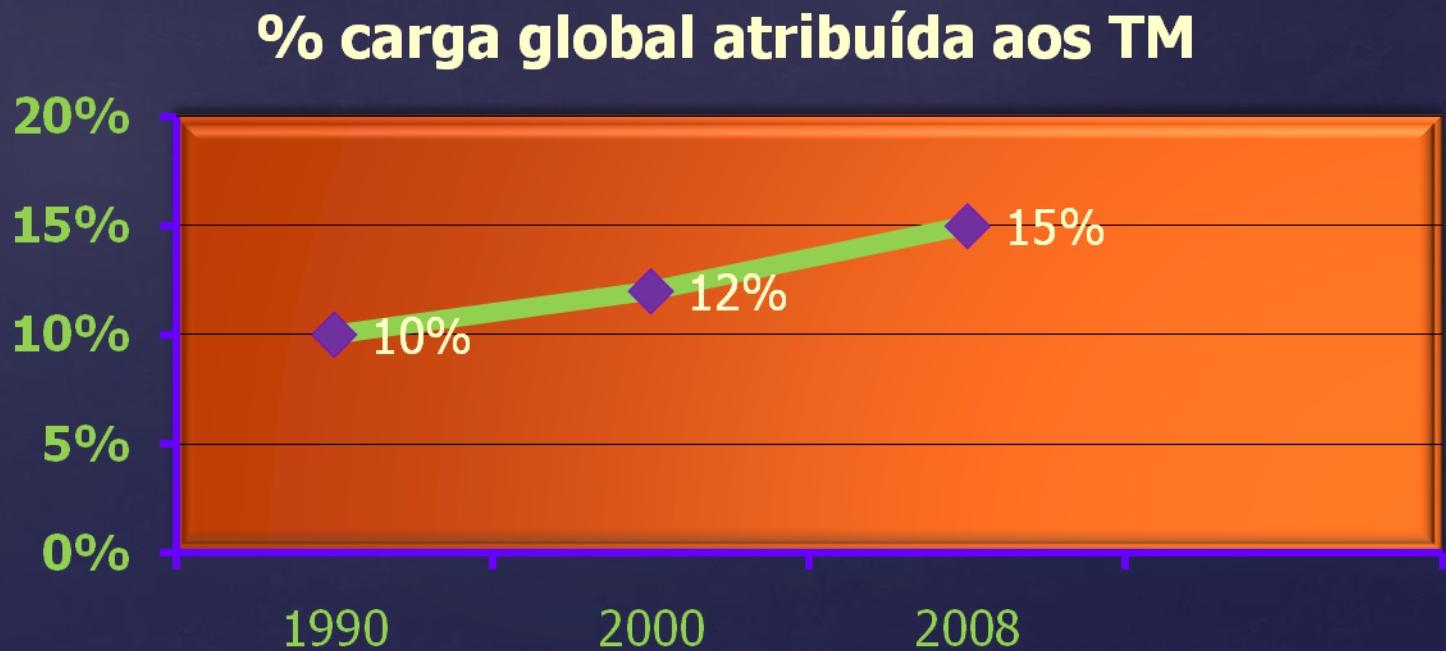
**Table 31.1** Disease Burden of Selected Major Psychiatric Disorders, by World Bank Region

	World Bank region							
	Sub-Saharan Africa	Latin America and the Caribbean	Middle East and North Africa	Europe and Central Asia	South Asia	East Asia and the Pacific	High-income countries	World
Total population (millions)	668	526	310	477	1,388	1,851	929	6,159
Total disease burden (thousands of DALYs)	344,754	104,287	65,570	116,502	408,655	346,941	149,161	1,535,870
Total neuropsychiatric disease burden (thousands of DALYs)	15,151	18,781	8,310	14,106	37,734	42,992	31,230	168,304
	4.4%	18%	12.6%	12.1%	9.2%	12.4%	20.9%	11%
<i>Total burden (thousands of discounted DALYs per year)</i>								
Schizophrenia	1,146	1,078	696	778	2,896	3,934	1,115	11,643
Bipolar disorder	1,204	883	567	668	2,237	3,118	1,056	9,733
Depression	3,275	5,219	2,027	4,268	14,582	14,054	8,408	51,833
Panic disorder	519	409	264	340	1,081	1,401	536	4,550
<i>Total burden (DALYs per year per 1 million population)</i>								
Schizophrenia	1,716	2,049	2,247	1,630	2,087	2,126	1,201	1,894
Bipolar disorder	1,803	1,678	1,830	1,400	1,612	1,685	1,137	1,583
Depression	4,905	9,919	6,544	8,944	10,507	7,594	9,054	8,431
Panic disorder	777	777	852	713	779	757	577	740
<i>Percentage of total disease burden</i>								
Schizophrenia	0.33	1.03	1.06	0.67	0.71	1.13	0.75	0.76
Bipolar disorder	0.35	0.85	0.86	0.57	0.55	0.90	0.71	0.63
Depression	0.95	5.00	3.09	3.66	3.57	4.05	5.64	3.37
Panic disorder	0.15	0.39	0.40	0.29	0.26	0.40	0.36	0.30
<i>Percentage of neuropsychiatric disease burden</i>								
Schizophrenia	7.56	5.74	8.38	5.52	7.67	9.15	3.57	6.92
Bipolar disorder	7.95	4.70	6.82	4.74	5.93	7.25	3.38	5.78
Depression	21.62	27.79	24.39	30.26	38.64	32.69	26.92	30.80
Panic disorder	3.43	2.18	3.18	2.41	2.86	3.26	1.72	2.70

Source: WHO Global Burden of Disease 2001 estimates recalculated by World Bank region (<http://www.who.int/gho/dpp/gbd.html>).

<b>Grupos de causas de óbito</b>	<b>DALY</b>	<b>Posto</b>
<b>Todas as causas</b>	<b>37.518.239</b>	— 1
<b>Grupo I</b>	<b>8.805.213</b>	—
<b>Doenças infecciosas/parasitárias, maternas, perinatais e nutricionais</b>		
I.A. Infecciosas e parasitárias	3.438.619	3
I.B. Infecções respiratórias	1.310.824	11
I.C. Condições maternas	891.278	13
I.D. Condições durante o período perinatal	2.383.012	6
I.E. Deficiências nutricionais	781.480	14
<b>Grupo II</b>	<b>24.867.484</b>	— 1
<b>Doenças não-transmissíveis</b>		
II.A. Câncer	2.370.331	7
II.B. Neoplasias benignas	24.384	21
II.C. Diabetes mellitus	1.929.362	9
II.D. Doenças endócrinas e metabólicas	567.046	16
II.E. Doenças neuropsiquiátricas	6.987.074	1
II.F. Desordens de órgãos do sentido	395.967	18
II.G. Doenças cardiovasculares	4.989.406	2
II.H. Doenças respiratórias crônicas	3.033.382	4
II.I. Doenças do aparelho digestivo	1.001.374	12
II.J. Doenças genito-urinárias	316.040	19
II.K. Doenças de pele	29.743	20
II.L. Doenças músculo-esqueléticas	2.072.591	8
II.M. Anomalias congênitas	687.153	15
II.N. Condições orais	463.630	17

# Global Burden of Diseases (GBD)



# The treatment gap in mental health care

Robert Kohn,<sup>1</sup> Shekhar Saxena,<sup>2</sup> Itzhak Levav,<sup>3</sup> & Benedetto Saraceno<sup>2</sup>

**Abstract** Mental disorders are highly prevalent and cause considerable suffering and disease burden. To compound this public health problem, many individuals with psychiatric disorders remain untreated although effective treatments exist. We examine the extent of this treatment gap. We reviewed community-based psychiatric epidemiology studies that used standardized diagnostic instruments and included data on the percentage of individuals receiving care for schizophrenia and other non-affective psychotic disorders, major depression, dysthymia, bipolar disorder, generalized anxiety disorder (GAD), panic disorder, obsessive-compulsive disorder (OCD), and alcohol abuse or dependence. The median rates of untreated cases of these disorders were calculated across the studies. Examples of the estimation of the treatment gap for WHO regions are also presented. Thirty-seven studies had information on service utilization. The median treatment gap for schizophrenia, including other non-affective psychosis, was 32.2%. For other disorders the gap was: depression, 56.3%; dysthymia, 56.0%; bipolar disorder, 50.2%; panic disorder, 55.9%; GAD, 57.5%; and OCD, 57.3%. Alcohol abuse and dependence had the widest treatment gap at 78.1%. The treatment gap for mental disorders is universally large, though it varies across regions. It is likely that the gap reported here is an underestimate due to the unavailability of community-based data from developing countries where services are scarcer. To address this major public health challenge, WHO has adopted in 2002 a global action programme that has been endorsed by the Member States.

**Keywords** Mental health services/utilization; Health services accessibility; Schizophrenia/therapy; Anxiety disorders/therapy; Mood disorders/therapy; Compulsive personality disorder/therapy; Alcoholism/therapy; Epidemiologic studies; Cost of illness; Americas; Europe (*source: MeSH, NLM*).

**Mots clés** Service santé mentale/utilisation; Accessibilité service santé; Schizophrénie/thérapeutique; Etat anxiété/thérapeutique; Troubles humeur/thérapeutique; Personnalité compulsive/thérapeutique; Alcoolisme/thérapeutique; Etude analytique (Epidémiologie); Coût maladie; Amérique; Europe (*source: MeSH, INSERM*).

**Palabras clave** Servicios de salud mental/utilización; Accesibilidad a los servicios de salud; Esquizofrenia/terapia; Trastornos de ansiedad/terapia; Trastornos del humor/terapia; Trastorno de personalidad compulsiva/terapia; Alcoholismo/terapia; Estudios epidemiológicos; Costo de la enfermedad; Americas; Europa (*fuente: DeCS, BIREME*).

Table 2. Estimates of the median treatment gap (%) by WHO region

Mental disorder	WHO region					
	Africa	Americas	Eastern Mediterranean	Europe	South-East Asia	Western Pacific
Schizophrenia	NA <sup>a</sup>	56.8	NA	17.8	28.7	35.9
Major depression	67.0	56.9	70.2	45.4	NA	48.1
Dysthymia	NA	48.6	NA	43.9	NA	50.0
Bipolar disorder	NA	60.2	NA	39.9	NA	52.6
Panic disorder	NA	55.4	NA	47.2	NA	66.7
Generalized anxiety	NA	49.6	NA	62.3	NA	55.6
Obsessive compulsive	NA	82.0	NA	24.6	NA	62.7
Alcohol abuse/dependence	NA	72.6	NA	92.4	NA	71.6

<sup>a</sup> Not available.

(Table 1, cont.)

Place or name of study <sup>a</sup>	Prevalence period for help-seeking (months)	Mental disorder							
		Schizophrenia and non-affective psychoses	Major depression	Dysthymia	Bipolar disorder	Panic disorder	Generalized anxiety disorder	Obsessive-compulsive disorder	Alcohol abuse or dependence
Taiwan, China (38, 39)	Lifetime								79.6
Turkey (40)	12		62.6	71.1		65.5	74.0	67.6	89.8
ONS, United Kingdom <sup>b, c</sup> (41)	12	15.0	56.0			64.0	67.0	60.0	96.0
OPCS, United Kingdom <sup>b</sup> (42, 43)	12	18.0	65.0			72.0	70.0	68.0	
Sleep Eval, United Kingdom (44)	Current		83.9						
ECA, USA (45, 46)	12	35.7	46.1	57.9	39.1	41.2		54.9	78.0
Mexican-Americans in CA, USA <sup>b, c</sup> (47, 48)	12		56.6						75.2
NCS, USA (49, 50)	12	46.9	72.3	74.0	78.9	64.8	68.2		80.6
New Haven, CT, USA (51, 52)	1		69.2						69.2
NLAES, USA (53, 54)	12								67.0
Puerto Rico, USA <sup>b, c</sup> (55–57)	12	9.7	70.0						76.0
Utah, USA (58)	Lifetime		40.7						
Harare, Zimbabwe (59)	12		67.0						
<b>Median rate untreated</b>		32.2	56.3	56.0	50.2	55.9	57.5	59.5	78.1
<b>Mean rate untreated</b>		31.1	53.9	53.5	48.9	50.6	56.1	52.8	76.2

<sup>a</sup> Information in parentheses is the reference number. References for these studies can be found in Appendix 2 (web version only, available at: <http://www.who.int/bulletin>).

<sup>b</sup> In these studies, mood disorder was not necessarily limited to major depression.

<sup>c</sup> In these studies, substance use disorder was not necessarily limited to alcohol.

# Global, regional, and national incidence, prevalence, and years lived with disability for 301 acute and chronic diseases and injuries in 188 countries, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013



Global Burden of Disease Study 2013 Collaborators\*

## Summary

**Background** Up-to-date evidence about levels and trends in disease and injury incidence, prevalence, and years lived with disability (YLDs) is an essential input into global, regional, and national health policies. In the Global Burden of Disease Study 2013 (GBD 2013), we estimated these quantities for acute and chronic diseases and injuries for 188 countries between 1990 and 2013.

*Lancet* 2015; 386:743-800

Published Online

June 8, 2015

[http://dx.doi.org/10.1016/S0140-6736\(15\)60692-4](http://dx.doi.org/10.1016/S0140-6736(15)60692-4)

See [Editorial](#) page 718

See [Comment](#) page 721

\*Collaborators listed at the end of the Article

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**Methods** Estimates were calculated for disease and injury incidence, prevalence, and YLDs using GBD 2010 methods with some important refinements. Results for incidence of acute disorders and prevalence of chronic disorders are new additions to the analysis. Key improvements include expansion to the cause and sequelae list, updated systematic reviews, use of detailed injury codes, improvements to the Bayesian meta-regression method (DisMod-MR), and use of severity splits for various causes. An index of data representativeness, showing data availability, was calculated for each cause and impairment during three periods globally and at the country level for 2013. In total, 35 620 distinct sources of data were used and documented to calculate estimates for 301 diseases and injuries and 2337 sequelae. The comorbidity simulation provides estimates for the number of sequelae, concurrently, by individuals by country, year, age, and sex. Disability weights were updated with the addition of new population-based survey data from four countries.

# Top 25 Causes of Global Years Lived with Disability - 2013

2013 leading causes	Mean rank (95% UI)	Mean YLDs (x1000)	Median percentage change
1 Low back pain	1·0 (1-1)	72318	57% (53 to 61)
2 Major depression	2·1 (2-4)	51784	53% (49 to 59)
3 Iron-deficiency anaemia	3·6 (2-6)	36663	-9% (-10 to -7)
4 Neck pain	4·3 (3-6)	34348	54% (49 to 60)
5 Other hearing loss	5·3 (3-9)	32580	51% (45 to 55)
6 Migraine	6·6 (3-10)	28898	46% (41 to 50)
7 Diabetes	6·7 (5-9)	29518	136% (127 to 144)
8 COPD	7·8 (4-10)	26131	72% (67 to 79)
9 Anxiety disorders	8·5 (5-10)	24356	42% (36 to 47)
10 Other musculoskeletal	9·2 (7-10)	22644	79% (75 to 83)
11 Schizophrenia	11·5 (11-15)	15204	52% (50 to 54)
12 Falls	12·7 (12-14)	12818	23% (14 to 35)
13 Osteoarthritis	12·8 (11-15)	12811	75% (73 to 78)
14 Refraction and accommodation	15·5 (11-22)	11257	44% (40 to 47)
15 Asthma	16·1 (12-21)	10596	32% (29 to 35)
16 Dysthymia	17·4 (14-21)	9849	55% (52 to 57)
17 Bipolar disorder	17·5 (12-25)	9911	49% (46 to 53)
18 Medication overuse headache	17·8 (12-27)	9846	120% (109 to 134)
19 Other mental and substance	18·5 (14-24)	9257	52% (50 to 54)
20 Dermatitis	18·8 (15-25)	9278	37% (35 to 39)
21 Alzheimer's disease	22·2 (18-26)	7774	92% (85 to 99)
22 Alcohol use disorders	23·0 (18-28)	7654	34% (32 to 37)
23 Epilepsy	23·2 (18-30)	7544	41% (28 to 57)
24 Edentulism	25·9 (21-31)	6856	46% (43 to 48)
25 Diarrhoeal diseases	26·1 (23-30)	6854	-7% (-9 to -5)

# The Impact of Depression

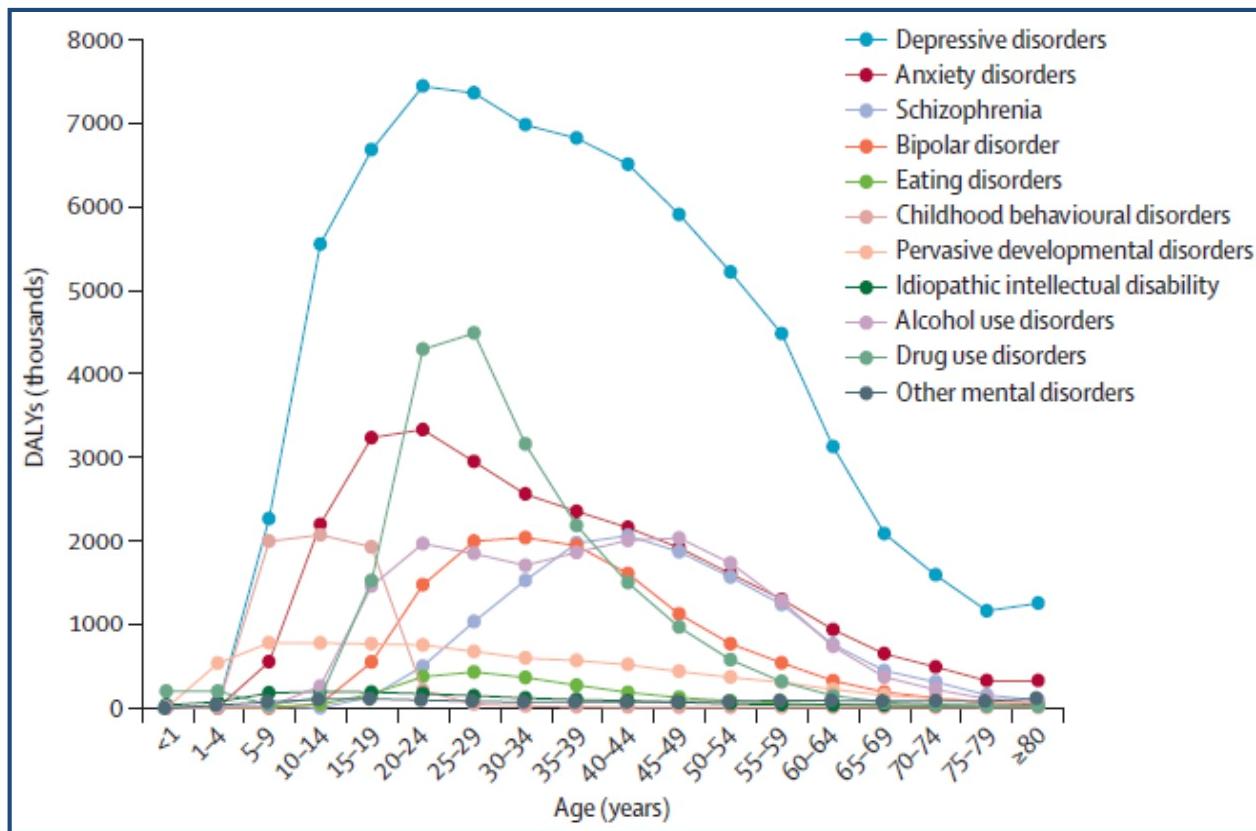
- Mental and substance abuse disorders accounted for 21·2% of YLDs, ranging from 15·4% in Germany to 36·7% in Qatar. Major depressive disorder was a crucial contributor in developed and developing countries alike: it is the leading cause of YLDs in 56 countries, the second leading cause in 56 countries, and the third in 34 countries.

# Disability-adjusted life years (DALYs) for 291 diseases and injuries in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010

*Lancet* 2012; 380: 2197–223

DALYS/100.00	1990	DALYS 2010	% Difference
Cardiovascular	4540	4282	-5.7%
Neoplasms	2793	2736	-2.1%
Mental Disorders	2539	2688	+5.8%
Depression	1019	1078	+5.9%

## *Disability-adjusted life years (DALYs) for each mental and substance use disorder in 2010, by age*



# Global burden of disease in young people aged 10–24 years: a systematic analysis



Fiona M Gore, Paul J N Bloem, George C Patton, Jane Ferguson, Véronique Joseph, Carolyn Coffey, Susan M Sawyer, Colin D Mathers

## Summary

**Background** Young people aged 10–24 years represent 27% of the world's population. Although important health problems and risk factors for disease in later life emerge in these years, the contribution to the global burden of disease is unknown. We describe the global burden of disease arising in young people and the contribution of risk factors to that burden.

Published Online

June 7, 2011

DOI:10.1016/S0140-6736(11)60512-6

See Online/Comment

DOI:10.1016/S0140-6736(11)60618-1

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goref@who.int

**Methods** We used data from WHO's 2004 Global Burden of Disease study. Cause-specific disability-adjusted life-years (DALYs) for young people aged 10–24 years were estimated by WHO region on the basis of available data for incidence, prevalence, severity, and mortality. WHO member states were classified into low-income, middle-income, and high-income countries, and into WHO regions. We estimated DALYs attributable to specific global health risk factors using the comparative risk assessment method. DALYs were divided into years of life lost because of premature mortality (YLLs) and years lost because of disability (YLDs), and are presented for regions by sex and by 5-year age groups.

**Findings** The total number of incident DALYs in those aged 10–24 years was about 236 million, representing 15·5% of total DALYs for all age groups. Africa had the highest rate of DALYs for this age group, which was 2·5 times greater than in high-income countries (208 vs 82 DALYs per 1000 population). Across regions, DALY rates were 12% higher in girls than in boys between 15 and 19 years (137 vs 153). Worldwide, the three main causes of YLDs for 10–24-year-olds were neuropsychiatric disorders (45%), unintentional injuries (12%), and infectious and parasitic diseases (10%). The main risk factors for incident DALYs in 10–24-year-olds were alcohol (7% of DALYs), unsafe sex (4%), iron deficiency (3%), lack of contraception (2%), and illicit drug use (2%).

**Interpretation** The health of young people has been largely neglected in global public health because this age group is perceived as healthy. However, opportunities for prevention of disease and injury in this age group are not fully exploited. The findings from this study suggest that adolescent health would benefit from increased public health attention.

**Funding** None.

	Males		Females		Total	
	Cause	Total DALYs (x1000) (%)	Cause	Total DALYs (x1000) (%)	Cause	Total DALYs (x1000) (%)
<b>10-24 years</b>						
1	Road traffic accidents	93 (7.8%)	Unipolar depressive disorders	115 (9.8%)	Unipolar depressive disorders	193 (8.2%)
2	Unipolar depressive disorders	78 (6.6%)	Schizophrenia	46 (4.0%)	Road traffic accidents	127 (5.4%)
3	Violence	69 (5.8%)	Bipolar disorder	44 (3.7%)	Schizophrenia	96 (4.1%)
4	Alcohol use	62 (5.3%)	Abortion	43 (3.7%)	Bipolar disorder	88 (3.8%)
5	Schizophrenia	50 (4.2%)	HIV/AIDS	38 (3.2%)	Violence	81 (3.5%)
6	Bipolar disorder	45 (3.8%)	Road traffic accidents	34 (2.9%)	Alcohol use	71 (3.0%)
7	Self-inflicted injuries	35 (3.0%)	Self-inflicted injuries	32 (2.7%)	HIV/AIDS	70 (3.0%)
8	HIV/AIDS	32 (2.7%)	Maternal sepsis	32 (2.7%)	Self-inflicted injuries	67 (2.8%)
9	Tuberculosis	32 (2.7%)	Lower respiratory infections	30 (2.6%)	Tuberculosis	60 (2.6%)
10	Asthma	32 (2.7%)	Panic disorder	30 (2.6%)	Lower respiratory infections	60 (2.6%)

## 15-19 years

1	Unipolar depressive disorders	34 (8.0%)	Unipolar depressive disorders	53 (11.7%)	Unipolar depressive disorders	86 (9.9%)
2	Road traffic accidents	33 (7.8%)	Schizophrenia	23 (5.2%)	Schizophrenia	46 (5.3%)
3	Alcohol use	30 (7.2%)	Bipolar disorder	22 (4.9%)	Road traffic accidents	46 (5.3%)
4	Schizophrenia	23 (5.4%)	Abortion	17 (3.8%)	Bipolar disorder	44 (5.1%)
5	Bipolar disorder	23 (5.3%)	Panic disorder	16 (3.5%)	Alcohol use	34 (4.0%)
6	Violence	21 (5.1%)	Maternal sepsis	14 (3.1%)	Violence	26 (3.0%)
7	Drug misuse	11 (2.7%)	Self-inflicted injuries	13 (3.0%)	Self-inflicted injuries	24 (2.8%)
8	Asthma	11 (2.6%)	Road traffic accidents	13 (2.9%)	Panic disorder	23 (2.7%)
9	Self-inflicted injuries	11 (2.6%)	Chlamydia	10 (2.3%)	Asthma	18 (2.0%)
10	Drownings	10 (2.5%)	Iron-deficiency anaemia	9 (2.1%)	HIV/AIDS	17 (2.0%)

## 20-24 years

# Undertreatment of people with major depressive disorder in 21 countries\*

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## Background

Major depressive disorder (MDD) is a leading cause of disability worldwide.

## Aims

To examine the: (a) 12-month prevalence of DSM-IV MDD; (b) proportion aware that they have a problem needing treatment and who want care; (c) proportion of the latter receiving treatment; and (d) proportion of such treatment meeting minimal standards.

## Method

Representative community household surveys from 21 countries as part of the World Health Organization World Mental Health Surveys.

## Results

Of 51547 respondents, 4.6% met 12-month criteria for DSM-IV MDD and of these 56.7% reported needing treatment. Among those who recognised their need for treatment, most (71.1%) made at least one visit to a service provider. Among those who received treatment, only 41.0%

received treatment that met minimal standards. This resulted in only 16.9% of all individuals with 12-month MDD receiving minimally adequate treatment.

## Conclusions

Only a minority of participants with MDD received minimally adequate treatment: 1 in 5 people in high-income and 1 in 27 in low-/lower-middle-income countries. Scaling up care for MDD requires fundamental transformations in community education and outreach, supply of treatment and quality of services.

## Declaration of interest

In the past 3 years, R.C.K. received support for his epidemiological studies from Sanofi Aventis, was a consultant for Johnson & Johnson Wellness and Prevention and served on an advisory board for the Johnson & Johnson Services Inc. Lake Nona Life Project. R.C.K. is a co-owner of DataStat Inc., a market research firm that carries out healthcare research.

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Only a minority of people with MDD receive any treatment, despite MDD being a leading cause of disability

# **Issues of Unmet Needs**

- Low rates of recognition of their problem by people with depression
- Low rates of consultation of people who do recognize they have such a mental illness
- Barriers to access treatment

# **Issues of Unmet Needs**

- 12 month prevalence of MDD in 21 countries
- Proportion of those who are aware they have a problem and need treatment
- The proportion of those who actually receive treatment (contact coverage)
- The proportion of this treatment that meets minimum standard for adequacy

# **Criteria for Adequate Treatment**

- **Pharmacotherapy > 1 month**
- **More than four visits to a medical doctor**
- **More than eight sessions of psychotherapy**

**Table 1** Twelve-month prevalence of major depressive disorder (MDD), perceived need for treatment, receipt of any treatment and receipt of minimally adequate treatment

Country by income category <sup>a</sup>	% (s.e.)					<i>n</i> <sup>b</sup>
	A, % with 12-month diagnosis of MDD	B, % of those in A who had a perceived need for treatment	C, % of those in B with a 'perceived need' who received any 12-month treatment	D, % of those treated in C who received minimally adequate treatment	E, % of those in A who received minimally adequate treatment	
<b>I. High income</b>						
Belgium	5.2 (0.7)	64.7 (7.4)	81.7 (4.8)	55.7 (8.9)	29.5 (6.0)	105
France	5.6 (0.7)	59.3 (4.5)	79.5 (3.8)	48.7 (7.4)	23.0 (4.9)	158
Germany	3.1 (0.3)	60.6 (7.4)	78.5 (3.9)	66.3 (4.0)	31.6 (4.2)	109
Israel	5.9 (0.4)	54.0 (3.0)	72.5 (3.5)	40.3 (4.3)	15.8 (2.2)	280
Italy	2.9 (0.2)	52.3 (5.0)	73.5 (4.6)	43.4 (5.5)	16.7 (3.7)	119
Japan	2.4 (0.3)	50.4 (7.7)	80.1 (1.9)	54.9 (2.8)	22.2 (5.0)	81
Murcia, Spain	6.9 (0.5)	72.6 (4.8)	89.0 (3.5)	29.2 (5.3)	18.8 (3.5)	154
The Netherlands	4.9 (0.7)	61.0 (7.1)	82.0 (5.2)	66.2 (6.9)	33.1 (5.1)	125
Portugal	7.0 (0.5)	65.4 (2.4)	88.3 (1.4)	32.5 (4.1)	18.8 (2.7)	290
Spain	3.8 (0.3)	74.2 (3.4)	79.5 (4.2)	46.0 (5.1)	27.2 (3.2)	231
USA	6.7 (0.3)	74.0 (1.5)	77.4 (2.6)	46.4 (3.1)	26.6 (1.9)	646
Argentina	3.7 (0.5)	66.4 (4.7)	55.3 (4.1)	48.9 (3.3)	17.9 (2.7)	170
Total	5.2 (0.1)	64.9 (1.1)	77.9 (1.2)	44.2 (1.6)	22.4 (1.0)	2468
<b>II. Upper-middle income</b>						
São Paulo, Brazil	10.1 (0.7)	56.1 (3.4)	63.8 (2.7)	41.7 (5.4)	14.9 (2.0)	489
Bulgaria	3.0 (0.3)	50.7 (4.0)	63.3 (3.8)	21.0 (6.3)	6.7 (2.3)	145
Lebanon	4.9 (0.7)	41.0 (3.3)	56.8 (6.9)	30.3 (6.2)	7.0 (1.7)	126
Medellín, Colombia	3.8 (0.4)	51.7 (4.9)	53.5 (7.7)	32.4 (7.3) <sup>c</sup>	9.0 (2.7)	151
Mexico	3.7 (0.3)	58.3 (3.5)	48.4 (4.5)	25.4 (2.9)	6.4 (1.5)	231
Romania	1.5 (0.3)	29.8 (7.3)	90.3 (3.5)	63.0 (14.6)	13.5 (7.5)	40
Total	4.7 (0.2)	52.2 (1.9)	59.6 (1.9)	36.7 (3.5)	11.4 (1.2)	1182
<b>III. Lower-middle income</b>						
Colombia	5.3 (0.4)	49.2 (4.7)	41.3 (6.1)	24.6 (9.4)	5.0 (2.4)	241
Iraq	3.9 (0.4)	17.0 (3.9)	69.7 (2.0)	20.7 (0.7)	2.5 (2.4)	182
Nigeria	1.1 (0.2)	22.3 (3.0)	86.0 (6.3)	0.0 (•)	0.0 (•)	72
Peru	2.7 (0.3)	60.3 (6.1)	50.6 (5.7)	2.8 (2.9)	0.9 (0.9)	99
Beijing/Shanghai, PRC	2.0 (0.4)	39.3 (3.8)	60.3 (12.7)	• (•)	• (•)	87
Total	3.2 (0.2)	34.6 (2.5)	52.6 (3.4)	20.5 (3.4)	3.7 (1.4)	681
<b>IV. Total all countries</b>	<b>4.6 (0.1)</b>	<b>56.7 (1.0)</b>	<b>71.1 (1.0)</b>	<b>41.0 (1.4)</b>	<b>16.5 (0.7)</b>	<b>4001</b>

PRC, People's Republic of China; •, number could not be estimated because of sparse sampling/low responses.

a. See footnotes to online Table D6.1 for an explanation of why Colombia appears in two categories.

b. Number meeting criteria for MDD.

c. 20.1 (5.1).

# The global burden of disease in 10-24-year-olds

& The health of young people has been largely neglected in global public health because this age group is perceived as healthy. However, opportunities for prevention of disease and injury in this age group are not fully exploited.

# Transição Epidemiológica

Entende-se por transição epidemiológica as mudanças ocorridas no tempo nos padrões de morte, morbidade e invalidez que caracterizam uma população específica e que, em geral, ocorrem em conjunto com outras transformações demográficas, sociais e econômicas (Omram, 2001; Santos-Preciado et al., 2003)

# Transição Epidemiológica

- ¶ O processo engloba três mudanças básicas:
- ¶ substituição das doenças transmissíveis por doenças não-transmissíveis e causas externas;
- ¶ deslocamento da carga de morbi-mortalidade dos grupos mais jovens aos grupos mais idosos;
- ¶ e transformação de uma situação em que predomina a mortalidade para outra na qual a morbidade é dominante.

## ORIGINAL PAPER

Laura Andrade · Ellen E. Walters · Valentim Gentil · Ruy Laurenti

## Prevalence of ICD-10 mental disorders in a catchment area in the city of São Paulo, Brazil

Accepted: 9 January 2002

**Abstract** *Background* The prevalence (lifetime, 12-month, 1-month) of mental disorders, their relationship with sociodemographic features, and the use of services were investigated in the population aged 18 years or older living in the catchment area of a large hospital complex in the city of São Paulo, Brazil. *Methods* A community survey was conducted in two boroughs of São Paulo, on 1,464 residents aged 18 years or older. The assessment of psychopathology was made by CIDI 1.1, yielding diagnoses according to ICD-10 for mood disorders, anxiety disorders, non-affective psychosis, substance use disorders, dissociative and somatoform disorders, and cognitive impairment. *Results* Of the total sample, 45.9% had at least one lifetime diagnosis of mental disorder, 26.8% in the year, and 22.2% in the month prior to interview. The most prevalent disorders (lifetime, 12-month, and 1-month, respectively) were: nicotine dependence (25%, 11.4%, 9.3%), any mood disorder (18.5%, 7.6%, 5%) with depressive episode the most prevalent mood disorder (16.8%, 7.1%, 4.5%), any anxiety disorder (12.5%, 7.7%, 6%), somatoform disorder (6%, 4.2%, 3.2%), and alcohol abuse/dependence (5.5%, 4.5%, 4%). No gender differences were found in overall morbidity. Excluding substance use disorders, women had a higher risk for non-psychotic disorders. The presence of psychiatric diagnosis increased the use

of services, with a low proportion of subjects seeking specialty mental care. *Conclusion* Our results confirm the high prevalence of mental disorders in the community, similar to findings in other countries. A comparison with findings from other studies with similar methodology is made.

**Key words** mental disorders – epidemiology – Brazil – use of services – demographic correlates – prevalences

### Introduction

Population-based studies of psychiatric morbidity in Brazil are uncommon. Many studies have been conducted in primary health care settings (Mari 1987; Villano et al. 1995), or for specific populations and disorders (Lopes et al. 1996), but these studies did not allow estimation of population rates. The main reason for the paucity of population-based studies is that the country is very large, with a diversity of cultural and socioeconomic aspects represented in its 8.5 million square kilometers territorial extension and 160 million inhabitants (Almeida-Filho and Santana 1998).

The currently available estimates come from a multi-site population-based survey conducted on three metropolitan areas of Brazil (Almeida-Filho et al. 1997; n=6,470), using a 44-item screening instrument de-

# Prevalência 1 Ano – São Paulo

<i>Transtornos DSM-III</i>	<i>Masculino</i>		<i>Feminino</i>		<i>Total</i>	
	%	se	%	se	%	se
<i>Depressão maior</i>	3.5	0.9	9.1	1.1	<b>6.7</b>	0.8
<i>Distimia</i>	1.1	0.4	1.7	0.3	<b>1.4</b>	0.3
<i>Mania</i>	0.3	0.3	0.6	0.2	<b>0.5</b>	0.2
<i>T. Ansiedade Generalizada</i>	1.1	0.7	2.1	0.4	<b>1.7</b>	0.4
<i>Transtorno do Pânico</i>	0.1	0.1	1.7	0.4	<b>1.0</b>	0.2
<i>Todas as Fobias</i>	2.4	0.4	7.0	0.8	<b>5.7</b>	0.6
<i>T. Obsessivo compulsivo</i>	0.3	0.2	0.1	0.1	<b>0.2</b>	0.1
<i>Abuso/dependência – Álcool</i>	6.5	1.5	3.0	0.4	<b>3.9</b>	0.5
<i>Abuso/dependência – drogas</i>	1.1	0.4	0.2	0.1	<b>0.6</b>	0.2
<i>Psicose não-afetiva</i>	0.7	0.3	0.9	0.4	<b>0.8</b>	0.23
<i>Todos transtornos</i>	14.4	1.9	21.5	1.3	<b>18.5</b>	1.1

# Prevalência em Toda Vida – São Paulo

<i>Transtornos DSM-III</i>	<i>Masculino</i>		<i>Feminino</i>		<i>Total</i>	
	%	se	%	se	%	se
<i>Depressão maior</i>	13.2	1.7	19.1	1.3	<b>16.6</b>	0.15
<i>Distimia</i>	3.7	0.7	4.7	0.7	<b>4.3</b>	0.5
<i>Mania</i>	1.1	0.6	0.9	0.3	<b>1.0</b>	0.3
<i>T. Ansiedade Generalizada</i>	3.3	0.9	4.9	0.8	<b>4.2</b>	0.6
<i>Transtorno do Pânico</i>	0.7	0.4	2.3	0.4	<b>1.6</b>	0.3
<i>Todas as Fobias</i>	4.4	0.6	11.4	1.0	<b>9.3</b>	1.7
<i>T. Obsessivo compulsivo</i>	0.4	0.3	0.1	0.1	<b>0.3</b>	0.1
<i>Abuso/dependência – Álcool</i>	7.8	1.5	3.8	0.4	<b>5</b>	0.6
<i>Abuso/dependência – drogas</i>	1.9	0.6	0.6	0.3	<b>1</b>	0.4
<i>Psicose não-afetiva</i>	1.7	0.5	2.0	0.4	<b>2.1</b>	0.5
<i>Todos transtornos</i>	<b>28.4</b>	<b>2.4</b>	<b>36.6</b>	<b>1.4</b>	<b>33.1</b>	<b>1.3</b>

# The Impact of Epidemic Violence on the Prevalence of Psychiatric Disorders in São Paulo and Rio de Janeiro, Brazil

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## Abstract

**Background:** Violence and other traumatic events, as well as psychiatric disorders are frequent in developing countries, but there are few population studies to show the actual impact of traumatic events in the psychiatric morbidity in low and middle income countries (LMIC).

**Aims:** To study the relationship between traumatic events and prevalence of mental disorders in São Paulo and Rio de Janeiro, Brazil.

**Methods:** Cross sectional survey carried out in 2007–2008 with a probabilistic representative sample of 15– to 75-year-old residents in São Paulo and Rio de Janeiro, Brazil, using the Composite International Diagnostic Interview.

**Results:** The sample comprised 3744 interviews. Nearly 90% of participants faced lifetime traumatic events. Lifetime prevalence of any disorders was 44% in São Paulo and 42.1% in Rio de Janeiro. One year estimates were 32.5% and 31.2%. One year prevalence of traumatic events was higher in Rio de Janeiro than São Paulo (35.1 vs. 21.7;  $p < 0.001$ ). Participants from Rio de Janeiro were less likely to have alcohol dependence (OR 0.55;  $p = 0.027$ ), depression (OR 0.6;  $p = 0.006$ ) generalized anxiety (OR 0.59;  $p = 0.021$ ) and post traumatic stress disorder (OR 0.62;  $p = 0.027$ ). Traumatic events correlated with all diagnoses – e.g. assaultive violence with alcohol dependence (OR 5.7;  $p < 0.001$ ) and with depression (OR 1.7;  $p = 0.001$ ).

**Conclusion:** Our findings show that psychiatric disorders and traumatic events, especially violence, are extremely common in São Paulo and Rio de Janeiro, supporting the idea that neuropsychiatric disorders and external causes have become a major public health priority, as they are amongst the leading causes of burden of disease in low and middle income countries. The comparison between the two cities regarding patterns of violence and psychiatric morbidity suggests that environmental factors may buffer the negative impacts of traumatic events. Identifying such factors might guide the implementation of interventions to improve mental health and quality of life in LMIC urban centers.

**Citation:** Ribeiro WS, Mari JJ, Quintana MI, Dewey ME, Evans-Lacko S, et al. (2013) The Impact of Epidemic Violence on the Prevalence of Psychiatric Disorders in São Paulo and Rio de Janeiro, Brazil. PLoS ONE 8(5): e63545. doi:10.1371/journal.pone.0063545

**Editor:** Ulrike Schmidt, Max Planck Institute of Psychiatry, Germany

**Received:** April 4, 2012; **Accepted:** April 9, 2013; **Published:** May 6, 2013

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**Funding:** This study was supported by the State of São Paulo Research Foundation - FAPESP ([www.fapesp.br](http://www.fapesp.br)) through the grant 2004/15039-0, and the National Research and Technology Development Council - CNPq ([www.cnpq.br](http://www.cnpq.br)) through the grant 420122/2005-2. Wagner Ribeiro received a doctorate scholarship from CNPq (141467/2007-0) and a one-year scholarship from the Brazilian Coordination for Improvement of Faculty Personnel - CAPES ([www.capes.gov.br](http://www.capes.gov.br)), Proac4516/07-9, for a one-year training at the Institute of Psychiatry - King's College London. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

**Competing interests:** The authors have declared that no competing interest exist.

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# The Impact of Epidemic Violence on the Prevalence of Psychiatric Disorders in Sao Paulo and Rio de Janeiro, Brazil



- 11 million inhabitants
- Biggest economic centre
- GDP: 124 billion US dollars
- GDP per capita: 11,000 USD
- IDH: 0,710 a 0,961
- Homicides (2007): 16/100.000



- 6 million inhabitants
- Services and tourism
- GDP: 56 billion US dollars
- GDP per capita: 9,100 USD
- IDH: 0,700 a 0,956
- Homicides (2007): 37/100.000

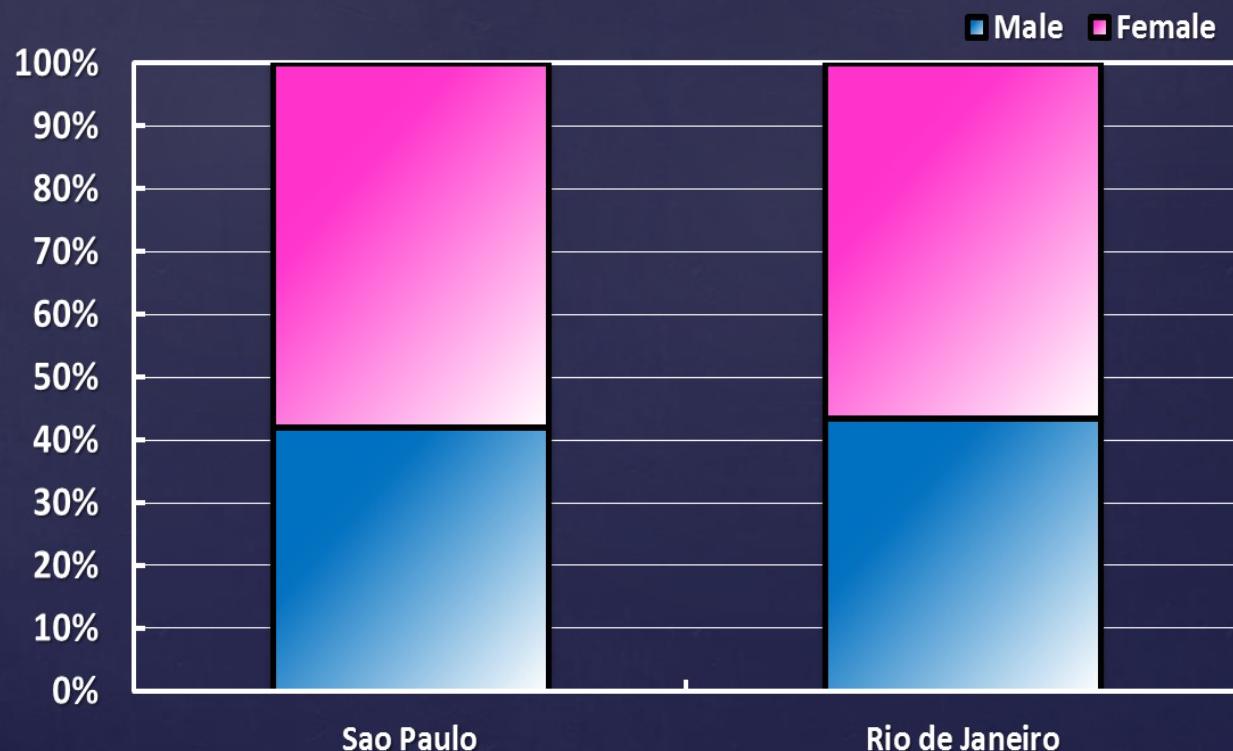
*The impact of epidemic violence on the prevalence of psychiatric disorders in Sao Paulo and Rio de Janeiro, Brazil.*

Ribeiro WS, Mari Jde J, Quintana MI, Dewey ME, Evans-Lacko S, Vilete LM, Figueira I, Bressan RA, de Mello ME, Prince M, Ferri CP, Coutinho ES, Andreoli SB. *PLoS One*. 2013; May 8(5):e63515.

# Results: Sample Characteristics

Final sample:

- Sao Paulo = 2536 (response rate = 84.5%)
- Rio de Janeiro = 1208 (response rate = 80.5%)

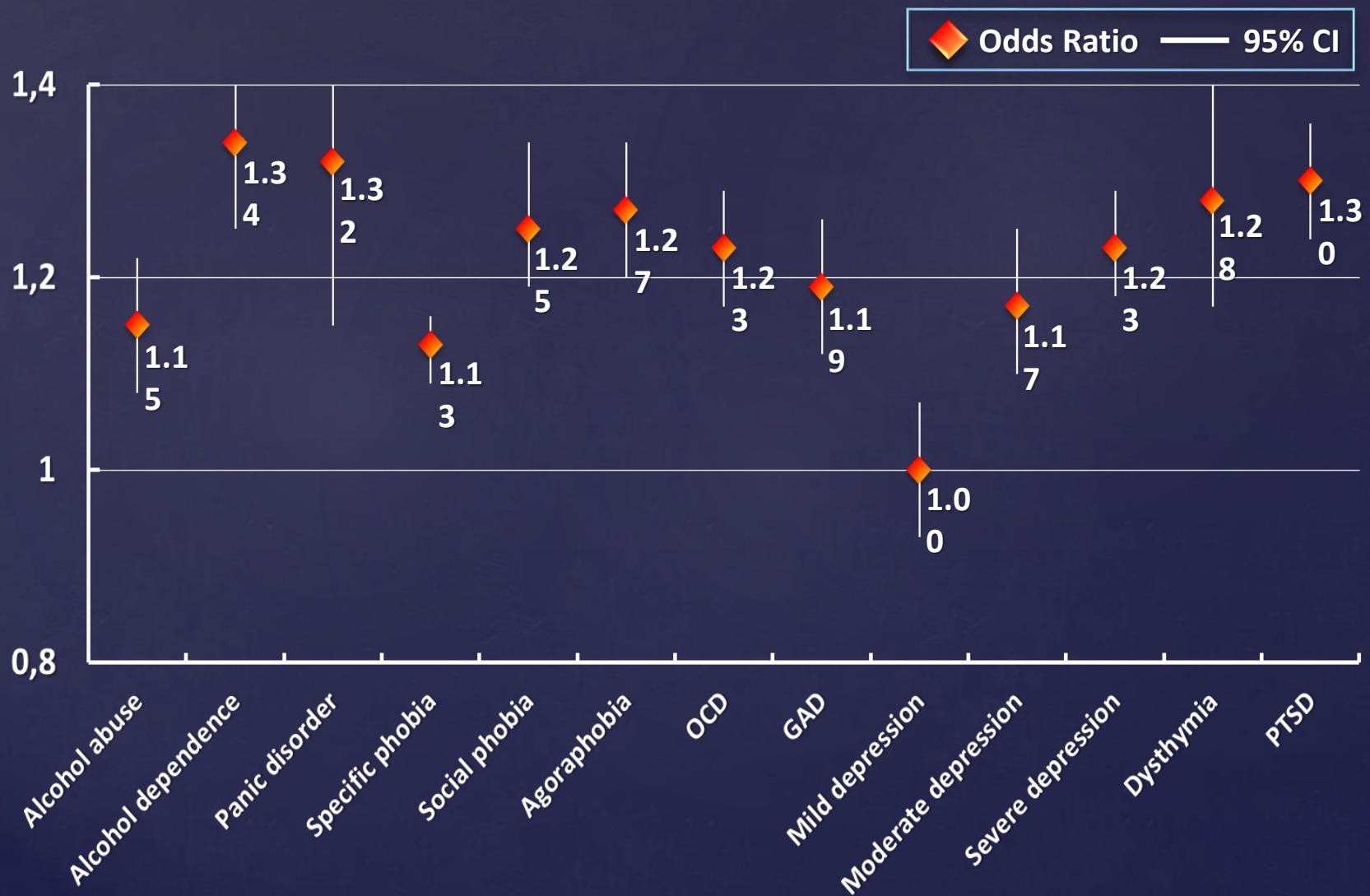


Event	Lifetime			Last year		
	Sao Paulo	Rio de Janeiro	P	Sao Paulo	Rio de Janeiro	P
Physical assault without weapon	21,8%	24,6%	0,09	1%	2,5%	< 0,01
Physical assault with weapon	28,8%	33,1%	0,02	2,5%	2,4%	0,95
Kidnap	0,7%	1,5%	0,05	0,1%	0,01%	0,84
Fast kidnap	2%	0,7%	0,01	0,002%	0%	0,53
Rape	1,3%	2,3%	0,04	0%	0,01%	0,11
Sexual molestation	2,5%	4,9%	< 0,01	0,004%	0,02%	0,22
Familial physical violence	7,3%	9,1%	0,11	0,06%	0,4%	0,46
Intimate-partner violence	6,8%	6,8%	0,99	0,9%	0,9%	0,89
Car accident	18,1%	17,4%	0,65	1,3%	1,5%	0,63
Witnessing a murder	27,1%	28,2%	0,52	3,4%	4,4%	0,22
Shootout/stray bullet	16,1%	29,4%	< 0,01	2%	11,7%	< 0,01
Domestic violence in childhood	16,2%	17,5%	0,4	0,3%	0%	0,22
Atrocities/slaughter	7,7%	11,5%	< 0,01	1%	2,2%	0,01
Sudden death of a loved one	42,2%	45,1%	0,15	3,8%	6,8%	< 0,01
Any traumatic events	86%	88,7%	0,05	21,7%	35,1%	< 0,01

# Lifetime Prevalence of DSM-IV Mental Disorders\*

	São Paulo			Rio de Janeiro		
	Males	Females	Total	Males	Females	Total
Alcohol hazardous use	13.6%	4.2%	8.1%	14.9%	5.2%	9.4%
Alcohol dependence	9.3%	3.3%	5.8%	8.8%	4.3%	6.2%
Major depression	11.6%	24.2%	18.9%	10.8%	22.5%	17.4%
Dysthymia	0.7%	1.9%	1.4%	1.9%	1.8%	1.9%
Panic disorder	0.6%	0.7%	0.7%	0.4%	2%	1.3%
Specific phobia	9.6%	22%	16.8%	9.3%	18.7%	14.6%
Social phobia	3.9%	7%	5.7%	2.6%	5.1%	4%
Agoraphobia	1.6%	5.9%	4%	2.5%	4.3%	3.5%
GAD	4%	7.4%	6%	3.8%	7.4%	5.8%
OCD	2.1%	5.5%	4.1%	2.5%	4.5%	3.6%
PTSD	4.2%	14.5%	10.2%	5.5%	11.1%	8.7%
Any disorder	38.1%	49.4%	44.7%	36.7%	47.9%	43.1%

# Association between number of events and mental disorders



# Epidemiology of Psychotropic Drug Use in Rio de Janeiro, Brazil: Gaps in Mental Illness Treatments

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## Abstract

**Objective:** Estimate the prevalence of psychotropic drugs use in the city of Rio de Janeiro, Brazil, and establish its relationship with the presence of mental disorders.

**Methods:** A probabilistic sample of non institutionalized individuals, from the general population of Rio de Janeiro ( $n = 1208$ ; turn out: 81%), 15 years or older, who were interviewed using the Composite International Diagnostic Interview 2.1 (depression, anxiety phobia, OCD/PTSD, alcoholism sections), and asked about their psychotropic use during a 12 and one month period before the interview. Data were collected between June/2007 February/2008. The prevalence was estimated with a confidence interval of 95%. The associations between psychotropics use and mental disorders were analyzed through a logistic regression model (Odds Ration – OR).

**Results:** The one month prevalence of psychotropic drug use was 6.55%, 3.19% for men and 9.13% for women. Antidepressants were the most frequently used drug (2.78%), followed by anorectics (1.65%), tranquilizers (1.61%) and mood stabilizers (1.23%). General practitioners issued the highest number of prescriptions (46.3%), followed by psychiatrists (29.3%); 86.6% of the psychotropic drugs used were paid for by the patient himself. Individuals with increased likelihood of using psychotropic drugs were those that had received a psychiatric diagnosis during a one month period before the study (OR:3.93), females (OR:1.82), separated/divorced (OR:2.23), of increased age (OR:1.03), with higher income (OR:2.96), and family history of mental disorder (OR:2.59); only 16% of the individuals with a current DSM IV diagnosis were using a psychotropic drug; 17% among individuals with a depression related diagnosis and 8% with Phobic Anxiety Disorders related diagnosis used psychotropics.

**Conclusion:** Approximately 84% of individuals displaying some mental disorder did not use psychotropic drugs, which indicates an important gap between demand and access to treatment. A significant failure is evident in the health system for patients with mental disorders; this could be due to health workers' inability to recognize mental disorders among individuals.

**Citation:** Quintana MI, Andreoli SB, Moreira PG, Ribeiro WS, Feijo MM, et al. (2013) Epidemiology of Psychotropic Drug Use in Rio de Janeiro, Brazil: Gaps in Mental Illness Treatments. PLoS ONE 8(5): e62270. doi:10.1371/journal.pone.0062270

**Editor:** James Bennett Pataki, University of Iowa Hospitals & Clinics, United States of America

Received November 28, 2012; Accepted March 19, 2013; Published May 14, 2013

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**Funding:** This project received grants from the State of São Paulo Support and Research Foundation (FAPESP) process number 420122/2005-2 and CNPQ process number 420122/2005-2. Editorial MCT/CNPQ 01/2005 - Millennium Institute 2005-2008. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

**Competing Interests:** The authors have declared that no competing interests exist

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# Epidemiology of Psychotropic Drug Use in Rio de Janeiro, Brazil: Gaps in Mental Illness Treatments

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RESEARCH ARTICLE

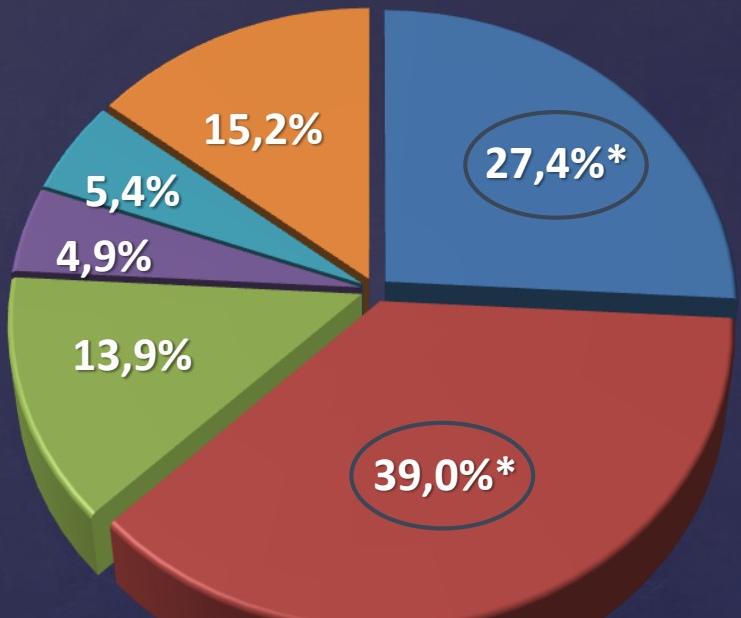
PLOS ONE | DOI:10.1371/journal.pone.0135059 August 7, 2015

## Psychotropic Drug Use An Epidemiological Survey

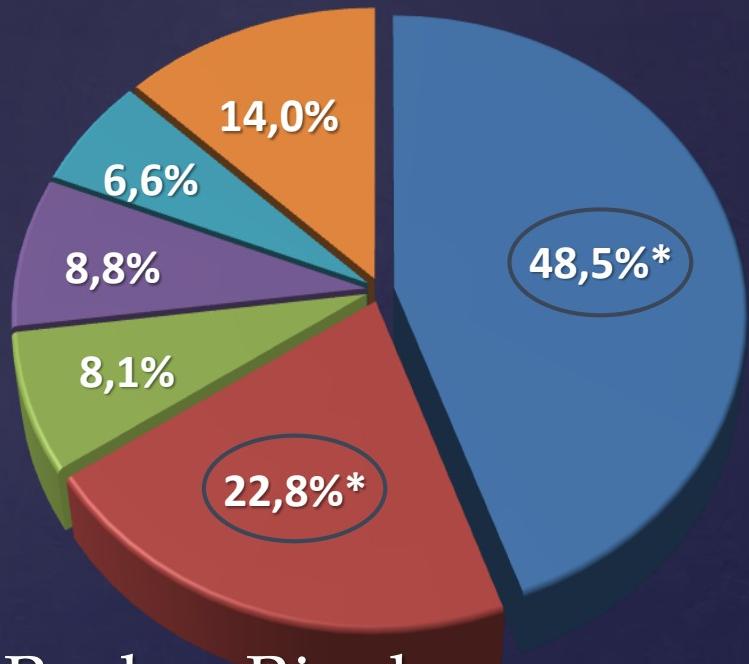
Maria Ines Quintana<sup>1\*</sup>, Sergio Baxter Andreoli<sup>1,2</sup>, Marcela Poctich Peluffo<sup>2</sup>, Wagner Silva Ribeiro<sup>1</sup>, Marcelo M. Feijo<sup>1</sup>, Rodrigo Affonseca Bressan<sup>1</sup>, Evandro S. F. Coutinho<sup>3</sup>, Jair de Jesus Mari<sup>1</sup>

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## São Paulo



## Rio de Janeiro



Uso de Psicotrópicos em São Paulo e Rio de Janeiro

Clínico geral

Psiquiatra

Neurologista

Cardiologista

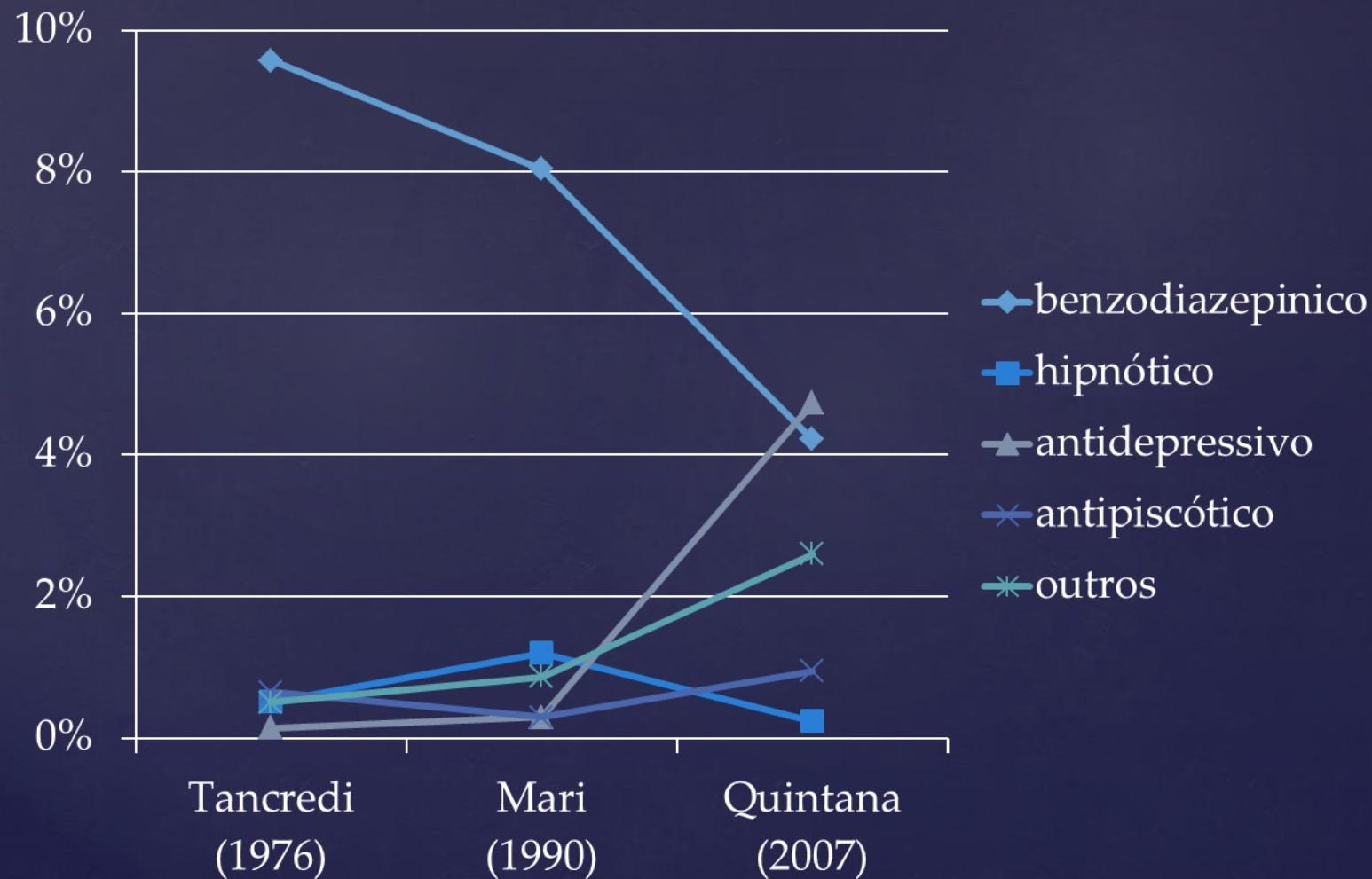
Outros médicos

Outros

# Prevalência de uso de Psicotrópicos último mês: São Paulo e Rio de Janeiro (n=3744)

	Rio de Janeiro (n=1208)		São Paulo (n=2536)	
	%	IC95%	%	IC95%
Geral	6.55	5.05-8.06	5.89	4.72-7.05
Antidepressivo	2.78	1.79-3.77	3.15	2.29-4.01
1ª geração	0.59	0.10-1.08	1.18	0.68-1.68
2ª geração	2.36	1.46-3.26	2.45	1.66-3.24
Tranquilizantes	1.61	0.79-2.42	0.40	0.04-0.77
Anorexígenos	1.65	0.86-2.44	0.53	0.18-.87
Estabilizadores	1.24	0.55-1.92	2.67	1.85-3.49
Humor				
Antipsicótico	1.05	0.47-1.63	0.67	0.28-1.06
típico	0.96	0.41-1.51	0.58	0.20-0.95
atípico	0.09	0-0.27	0.20	0-0.45
Hipnóticos	0.22	0-0.55	0.58	0.20-0.96
Others	1.14	0.56-1.72	0.11	0-0.31

# Evolução do uso de psicotrópicos (anual) em São Paulo



**Table 3.** Frequencies in the use of psychotropics distributed by type of drug and diagnosis identified in the month previous to the study, in the city of Rio de Janeiro (n=427).

Rio de Janeiro				
	n	Benzodiazepines % (n)	Antidepressives % (n)	GAP % (n)
Depression	48	6.3 (3)	16.7 (8)	72.9 (35)
Light depression	20	-	15.0 (3)	70.0 (14)
Moderate depression	12	8.3 (1)	16.7 (2)	75.0 (9)
Severe depression	9	22.2 (2)	22.2 (2)	66.7 (6)
Dysthymia	7	-	14.3 (1)	85.7 (6)
Anxiety-phobias	118	2.5 (3)	7.6 (9)	85.6 (101)
TOC	27	-	7.4 (2)	81.5 (22)
PTSD	28	-	3.6 (1)	71.4 (20)
Any of the above	262	3.4 (9)	6.9 (18)	84.0 (220)

GAP: individuals with positive diagnosis by the CIDI who did not receive psychotropic medication; TOC: Obsessive Compulsive Disorder; PTSD: Post-Traumatic Stress Disorder.

doi:10.1371/journal.pone.0062270.t003

**Overall Gap in São Paulo = 85.3%**

## *Relação entre Consumo de Psicotrópico (anual) e ter Diagnóstico (Anual) – CIDI 2.1*

	São Paulo			Rio de Janeiro		
	n	anti depressivo	NT	n	anti depressivo	NT
<b>Trans Depressivo</b>	<b>483</b>	<b>15.3</b>	<b>73.5</b>	<b>212</b>	<b>10.3</b>	<b>70.3</b>
<b>Trans Fobico-Ansioso</b>	<b>421</b>	<b>10.0</b>	<b>81.9</b>	<b>181</b>	<b>7.2</b>	<b>80.1</b>
<b>Qualquer transtorno</b>	<b>824</b>	<b>10.3</b>	<b>81.2</b>	<b>374</b>	<b>9.1</b>	<b>77.3</b>

NT: indivíduos com diagnóstico positivo no CIDI e não recebem nenhum tipo de medicação psicotrópica;  
Qualquer transtorno: combinação de qualquer um dos transtornos mentais avaliados no estudo.

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# The epidemiology of depression across cultures

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*Ann Rev Public Health.* 2013 ; 34: 119–138. doi:10.1146/annurev-publhealth-031912-114409.

## *Prevalence of DSM-IV/CIDI major depressive episodes in the 18 countries participating in the WMH surveys*

	Screen+		Lifetime prevalence		Lifetime/screen+		12-month prevalence		12-month screen		12-month lifetime		Age of onset	
	%	(SE)	%	(SE)	%	(SE)	%	(SE)	%	(SE)	%	(SE)	Median	(IQR)
<b>I. High income</b>														
Belgium	49.4	(2.5)	14.1	(1.0)	28.5	(1.9)	5.0	(0.5)	10.0	(1.0)	35.2	(2.8)	29.4	(20.9-41.3)
France	65.0	(1.7)	21.0	(1.1)	32.3	(1.4)	5.9	(0.6)	9.0	(0.9)	27.9	(2.6)	28.4	(19.3-38.9)
Germany	43.1	(1.4)	9.9	(0.6)	23.0	(1.3)	3.0	(0.3)	6.9	(0.6)	30.1	(2.1)	27.6	(18.6-39.6)
Israel	45.1	(0.8)	10.2	(0.5)	22.6	(1.0)	6.1	(0.4)	13.5	(0.8)	59.6	(2.3)	25.5	(18.1-38.5)
Italy	44.9	(1.7)	9.9	(0.5)	22.1	(1.0)	3.0	(0.2)	6.7	(0.5)	30.2	(1.9)	27.7	(19.1-39.1)
Japan	29.9	(0.8)	6.6	(0.5)	22.2	(1.4)	2.2	(0.4)	7.4	(1.2)	33.3	(4.2)	30.1	(20.8-45.3)
Netherlands	53.2	(1.6)	17.9	(1.0)	33.6	(1.8)	4.9	(0.5)	9.2	(1.0)	273	(2.6)	27.2	(19.3-39.5)
New Zealand	61.9	(0.6)	17.8	(0.4)	28.7	(0.6)	6.6	(0.3)	10.6	(0.5)	27.0	(1.5)	24.2	(16.1-34.5)
Spain	37.7	(1.0)	10.6	(0.5)	28.2	(1.2)	4.0	(0.3)	10.6	(0.8)	37.5	(1.9)	30.0	(19.7-44.3)
United States	62.0	(0.9)	19.2	(0.5)	30.9	(0.7)	8.3	(0.3)	13.3	(0.5)	43.1	(1.2)	22.7	(15.1-34.6)
TOTAL	52.3	(0.4)	14.6	(0.2)	28.1	(0.3)	5.5	(0.1)	10.6	(0.2)	37.7	(0.7)	25.7	(17.3-37.2)
<b>II. Low-middle income</b>														
Brazil (Sao Paulo)	66.0	(1.0)	18.4	(0.8)	27.9	(1.1)	10.4	(0.6)	15.8	(0.8)	56.7	(1.5)	24.3	(17.2-35.8)
Colombia	58.6	(1.1)	13.3	(0.6)	22.6	(1.0)	6.2	(0.4)	10.6	(0.7)	46.7	(2.6)	23.5	(15.6-33.6)
India (Pondicherry)	25.0	(0.9)	9.0	(0.5)	35.9	(1.5)	4.5	(0.4)	18.0	(1.4)	50.0	(3.0)	319.9	(24.5-42.7)
Lebanon	57.7	(1.8)	10.9	(0.9)	18.9	(1.3)	5.5	(0.7)	9.5	(1.2)	50.0	(3.7)	23.8	(17.5-32.8)
Mexico	40.6	(1.1)	8.0	(0.5)	19.6	(1.2)	4.0	(0.3)	9.8	(0.8)	50.0	(2.7)	23.5	(16.7-34.0)
PRC (Shenzhen)	54.6	(0.9)	6.5	(0.4)	12.0	(0.7)	3.8	(0.3)	6.9	(0.5)	58.0	(2.6)	18.8	(14.9-23.4)
South Africa	56.1	(1.3)	9.8	(0.7)	17.4	(1.2)	4.9	(0.4)	8.6	(0.8)	49.6	(2.7)	22.3	(15.8-33.8)
Ukraine	82.4	(1.1)	14.6	(0.7)	17.7	(0.8)	8.4	(0.6)	10.2	(0.7)	57.8	(2.2)	27.8	(18.7-39.6)
TOTAL	54.1	(0.4)	11.1	(0.2)	19.8	(0.4)	5.9	(0.2)	10.5	(0.3)	53.3	(0.9)	24.0	(17.0-34.8)

# The Mental Health Care Gap among Children and Adolescents: Data from an Epidemiological Survey from Four Brazilian Regions

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## Abstract

**Introduction:** Worldwide, a minority of disordered children/adolescents receives mental health assistance. In order to improve service access, it is important to investigate factors that influence the process leading to receiving care. Data on frequency and barriers for mental health service use (MHSU) among Brazilian children/adolescents are extremely scarce and are needed to guide public policy.

**Objectives:** To establish the frequency of MHSU among 6-to-16-year-old with psychiatric disorders from four Brazilian regions; and to identify structural/psychosocial/demographic barriers associated with child/adolescent MHSU.

**Methods:** Multicenter cross-sectional-study involving four towns from four out of five Brazilian regions. In each town, a representative sample of elementary public school students was randomly selected (sample: 1,721). Child/adolescent MHSU was defined as being seen by a psychologist/psychiatrist/neurologist in the previous 12 months. Standardized instruments measured: (1) children/adolescent characteristics [(1.1) Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS-PL)-psychiatric disorders; (1.2) Ten Questions Screen-neurodevelopment problems; (1.3) two subtests of WISC-III-estimated IQ; (1.4) Academic Performance Test-school performance)], (2) factors related to mothers/main caregivers (Self-Reporting Questionnaire-anxiety/depression), (3) family (Brazilian Research-Companies-Association's Questionnaire-SES).

**Results:** Only 19.8% of children/adolescents with psychiatric disorder have used mental health services in the previous 12 months. Multiple logistic regression modeling identified five factors associated with lower rates of MHSU (female gender, adequate school performance, mother/main caregiver living with a partner, lower SES, residing in deprived Brazilian regions) regardless of the presence of any psychiatric disorders/neurodevelopmental problems.

**Conclusions:** Only a small proportion of children/adolescents with psychiatric disorders had been seen by a mental health specialist in the previous 12 months. Structural/psychosocial/demographic factors were associated with uneven access to service for certain groups of children/adolescents. These results call attention to the urgent need to implement programs to help reduce this large unmet mental health need; inequalities must be considered by policy makers when planning strategies to address barriers for care.



# SITES

- ▶ **Caeté  
(Southeast)**
- ▶ **Goianira  
(Western)**
- ▶ **Itaitinga  
(Northeast)**
- ▶ **Rio Preto da Eva  
(North)**



# PREVALENCE OF PSYCHIATRIC DISORDERS AMONG CHILDREN AND ADOLESCENTS FROM FOUR BRAZILIAN REGIONS

Percent Prevalence for DSM-IV Disorders for the entire sample (N = 1,735)

	Current
Any disorder	144 (14.4%)
Any anxiety	116 (6.7%)
Any ADHD	73 (4.2%)
Conduct disorders*	39 (2.2%)
Any depression	10 (0.6%)
Psychosis	4 (0.23%)
Eating disorders	3 (0.17%)

Only 20% of children  
with mental health  
problems in Brazil have  
access to a mental health  
professional, most of  
them (85%) psychologists  
and not psychiatrists

# **Factors Related to the Prevalence Increase of Mental Disorders**

- Improving Diagnosis
- Availability of Effective Treatments
- Migration and immigration movements
- Use and Alcohol and Drug Abuse
- Urbanization, Low Access to Services, Social Inequality
- Impact of Violence on Mental Health Population
- Improves Longevity



# Revista Brasileira de Psiquiatria

## RBP Psychiatry

Official Journal of the Brazilian Psychiatric Association  
Volume 34 • Number 4 • December 2012



ORIGINAL ARTICLE

## Setting priorities for mental health research in Brazil

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Submitted on February 28, 2012; accepted on May 28, 2012

# Setting priorities for global mental health research

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**Objective** To set investment priorities in global mental health research and to propose a more rational use of funds in this under-resourced and under-investigated area.

**Methods** Members of the Lancet Mental Health Group systematically listed and scored research investment options on four broad classes of disorders: schizophrenia and other major psychotic disorders, major depressive disorder and other common mental disorders, alcohol abuse and other substance abuse disorders, and the broad class of child and adolescent mental disorders. Using the priority-setting approach of the Child Health and Nutrition Research Initiative, the group listed various research questions and evaluated them using the criteria of answerability, effectiveness, deliverability, equity and potential impact on persisting burden of mental health disorders. Scores were then weighted according to the system of values expressed by a larger group of stakeholders.

**Findings** The research questions that scored highest were related to health policy and systems research, where and how to deliver existing cost-effective interventions in a low-resource context, and epidemiological research on the broad categories of child and adolescent mental disorders or those pertaining to alcohol and drug abuse questions. The questions that scored lowest related to the development of new interventions and new drugs or pharmacological agents, vaccines or other technologies.

**Conclusion** In the context of global mental health and with a time frame of the next 10 years, it would be best to fill critical knowledge gaps by investing in research into health policy and systems, epidemiology and improved delivery of cost-effective interventions.

## **1. Gather technical experts and define the context**

Gather a group of technical experts (Lancet Mental Health Group).<sup>3</sup>

Define the context in terms of scale (global), time period (10 years), target population (all people with one of four mental disorders) and disease burden being targeted (schizophrenia and other major psychotic disorders, major depressive disorder and other common mental disorders, alcohol abuse and other substance abuse disorder, and child and adolescent mental disorders).



## **2. Create a systematic list of research options, by research domain**

Use the following domains of research to list research options:

- epidemiological research or research to inform priority setting
- research to improve efficiency of health systems already in place, focusing on health policy and systems
- research to improve affordability and deliverability of existing interventions
- research to develop new health interventions.



## **3. Score listed research options by five criteria**

Through the technical experts, score the listed research options against the following criteria, answering three questions against each criterion (Box 1):

- likelihood of answerability in an ethical way
- likelihood of efficacy and effectiveness
- likelihood of deliverability and affordability
- maximum potential for disease burden reduction
- likely impact of equity in population.

# The Priority Brazilian Study: Recruitment and Technical Working Group

## step 1

- recruited a group of experts from different mental health domain
- the time scale for the exercise was ten years
- 28 participants (22 researchers, 5 policy makers, and the coordinator). Participants were asked to list relevant mental health research questions from their own, to consult the Brazilian Agenda for Health Research Priorities (Brasil, 2006), or to consult the mental health research priorities list reported by the Lancet expert group for middle and low income countries (Lancet, 2007)

## step 2

- create a list of research questions in five domains:
  - 1 - epidemiological research or research to inform priority setting
  - 2 - research to improve efficiency of health systems already in place
  - 3 - research to improve efficiency of health systems already in place focusing on health policy and systems
  - 4 - research to improve affordability and deliverability of existing interventions
  - 5 - research to develop new health interventions
- 17 participants provided 110 questions (distributed: 27 for domain (1) above, 35 for (2), 18 for (3), 11 for (4), and 19 for (5))

## step 3

- to score the listed questions by five criteria:
  - 1 - likelihood of answerability in an ethical way
  - 2 - likelihood of efficacy and effectiveness
  - 3 - likelihood of deliverability and affordability
  - 4 - maximum potential for disease burden reduction
  - 5 - likely impact of equity in population
- 15 participants replied the questionnaires by e-mail. The least number of votes of the questions selected received at least five votes. 35 questions were selected (Appendix)

# Questions Used by Experts to Assign Intermediate Scores to Competing Research Questions

- ☒ Criterion 1: likelihood that research would lead to new knowledge (enabling development or planning of an intervention) in an ethical way
- ☒ Criterion 2: assessment of likelihood that the intervention resulting from proposed research would be effective
- ☒ Criterion 3: assessment of deliverability, affordability and sustainability of the intervention resulting from proposed research
- ☒ Criterion 4: assessment of maximum potential of disease burden reduction
- ☒ Criterion 5: assessment of the impact of proposed health research on equity

Top Ten – Highest priority						
Questions	Answerable	Effective	Deliverable	Impact	Equitable	Weigheted Score
Q03 - Studies on the cost-effectiveness of combined interventions (psychopharmacological and psychosocial) to prevalent and/or disabling mental disorders conducted by interdisciplinary and multidisciplinary teams in the primary care setting, particularly for mental disorders that affect children and adolescents.	64,71	35,29	70,59	52,94	76,47	69,02
Q01 - Interventions to identify and treat common mental disorders in the primary care, especially in the Family Health Strategy, with active involvement of non-medical professionals of the Family Health Teams.	47,06	41,18	82,35	58,82	64,71	69,02
Q02 - Pharmacoeconomic studies to determine the cost-effectiveness of psychotropic drugs used in the public health system.	29,41	17,65	88,24	58,82	58,82	65,10
Q17 - Research to establish what are the most effective policies to control consumption of alcohol and drugs at the population level, such as taxation, availability of alcoholic beverages, control of marketing, and specific policies to prevent drinking and driving.	64,71	35,29	64,71	76,47	70,19	65,10
Q12 - Telemedicine for psychiatric consultation for non-psychiatrist physicians.	47,06	29,41	58,82	70,59	70,59	59,22
Q13 - Study of the barriers in terms of access to treatment for individuals with severe and persistent mental disorders and drug addiction.	41,18	29,41	70,59	58,82	47,06	59,22
Q04 - Epidemiological and social costs studies with focus on the demands for mental health that reach primary health care units, with emphasis on coverage gaps and identification of barriers in terms of access to treatment.	52,94	41,18	82,35	58,82	64,71	58,82
Q18 - Research with a nationally representative sample on the effectiveness and resolutability of the national mental health care policy (focused on general and childhood Psychosocial Care Centers - CAPS and CAPSi) for those affected by prevalent and/or disabling mental disorders, especially for mental disorders that affect children and adolescents.	47,06	23,53	58,82	64,71	58,82	58,82
Q05 - Studies on the effectiveness of primary care and integrated care ("matrix support") in the resolution of cases of mental disorders.	41,18	35,29	70,59	64,71	76,47	57,65
Q31 - Cost-effectiveness study of different models of stepped care in primary care, focusing on the most prevalent conditions: anxiety disorders, depression, somatoform disorders, alcohol and drugs.	47,06	35,29	58,82	52,94	47,06	55,69

# Grand challenges in global mental health

A consortium of researchers, advocates and clinicians announces here research priorities for improving the lives of people with mental illness around the world, and calls for urgent action and investment.

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[Grand challenges in global mental health](#). Collins PY, Patel V, Joestl SS, March D, Insel TR, Daar AS; Scientific Advisory Board and the Executive Committee of the Grand Challenges on Global Mental Health, Anderson W, Dhansay MA, Phillips A, Shurin S, Walport M, Ewart W, Savill SJ, Bordin IA, Costello EJ, Durkin M, Fairburn C, Glass RI, Hall W, Huang Y, Hyman SE, Jamison K, Kaaya S, Kapur S, Kleinman A.

# GRAND CHALLENGES FOR MNS DISORDERS

- ¶ Identify root causes, risk and protective factors
- ¶ Advance prevention and implementation of early interventions
- ¶ Improve treatments and expand access to care
- ¶ Raise awareness of the global burden
- ¶ Build human resource capacity
- ¶ Transform health-system and policy responses

Grand challenges in global mental health. Collins PY, Patel V, Joestl SS, March D, Insel TR, Daar AS; Scientific Advisory Board and the Executive Committee of the Grand Challenges on Global Mental Health, Anderson W, Dhansay MA, Phillips A, Shurin S, Walport M, Ewart W, Savill SJ, Bordin IA, Costello EJ, Durkin M, Fairburn C, Glass RI, Hall W, Huang Y, Hyman SE, Jamison K, Kaaya S, Kapur S, Kleinman A, Ogunniyi A, Otero-Ojeda A, Poo MM, Ravindranath V, Sahakian BJ, Saxena S, Singer PA, Stein DJ. *Nature.* 2011 Jul 6;475(7354):27-30

## **Psychiatry career in Brazil: Regional disparities, differences and similarities in an international context**

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### **Abstract**

This review explores the literature related to career choice of psychiatry in Brazil through selection of scientific articles published in the period from 1999 to 2013 in the MEDLINE and SciELO databases. There are currently 145 medical schools in Brazil, the highest concentration being in the more developed areas. In 2005, there were 6,003 psychiatrists working in Brazil, a rate of 3.3 psychiatrists per 100,000 inhabitants, with unequal distribution across the geographical regions of the country: a rate of 4.5 psychiatrists/100,000 inhabitants in the southern region, and less than one psychiatrist per 100,000 inhabitants in the northern region. The south and south-east regions comprise 56% of the national population and 76% of the residency posts in psychiatry. In 2013, 27% of the residency posts in psychiatry were not filled, particularly in the north and north-east areas, where the shortage of professionals is more pronounced. The number of specialized doctors is far below what is needed to cover the burden attributed to neuropsychiatric disorders in the country. The main hypotheses to explain this imbalance in Brazil are the relatively low exposure to the speciality during undergraduate coursework, the stigma attached to mental disorders, and the poor organization of mental healthcare services.

Table 3. Number of psychiatrists per 100,000 inhabitants in the geographical regions of Brazil, 2005 (CNES, 2005).

Region	Psychiatrists	
	N	Rate
North	93	0.63
North-east	948	1.86
Mid-west	312	2.40
South-east	3570	4.55
South	1080	4.00
Brazil total	6003	3.26

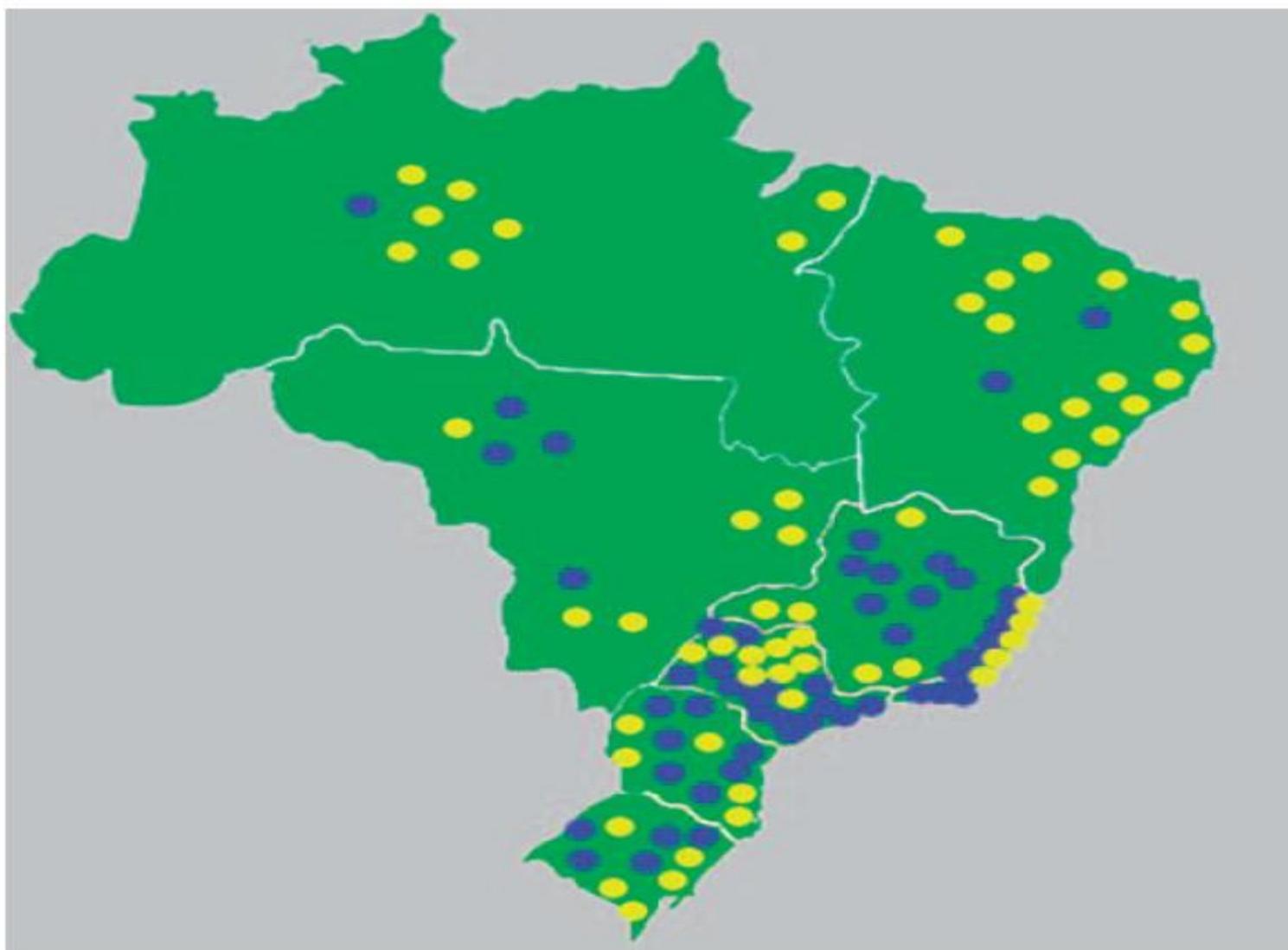


Fig. 1. Distribution of medical schools in Brazil (modified to grey scale from [www.abem-educmed.org.br/escolas.php](http://www.abem-educmed.org.br/escolas.php)).



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**Table 1** Twelve-month prevalence of major depressive disorder (MDD), perceived need for treatment, receipt of any treatment and receipt of minimally adequate treatment

Country by income category <sup>a</sup>	A, % with 12-month diagnosis of MDD	B, % of those in A who had a perceived need for treatment	C, % of those in B with a "perceived need" who received any 12-month treatment	% (s.e.)		n <sup>b</sup>
				D, % of those treated in C who received minimally adequate treatment	E, % of those in A who received minimally adequate treatment	
<b>I. High income</b>						
Belgium	5.2 (0.7)	64.7 (7.4)	81.7 (4.8)	55.7 (8.9)	29.5 (6.0)	105
France	5.6 (0.7)	59.3 (4.5)	79.5 (3.8)	48.7 (7.4)	23.0 (4.9)	158
Germany	3.1 (0.3)	60.6 (7.4)	78.5 (3.9)	66.3 (4.0)	31.6 (4.2)	109
Israel	5.9 (0.4)	54.0 (3.0)	72.5 (3.5)	40.3 (4.3)	15.8 (2.2)	280
Italy	2.9 (0.2)	52.3 (5.0)	73.5 (4.6)	43.4 (5.5)	16.7 (3.7)	119
Japan	2.4 (0.3)	50.4 (7.7)	80.1 (1.9)	54.9 (2.8)	22.2 (5.0)	81
Murcia, Spain	6.9 (0.5)	72.6 (4.8)	89.0 (3.5)	29.2 (5.3)	18.8 (3.5)	154
The Netherlands	4.9 (0.7)	61.0 (7.1)	82.0 (5.2)	66.2 (6.9)	33.1 (5.1)	125
Portugal	7.0 (0.5)	65.4 (2.6)	88.3 (1.6)	32.5 (4.1)	18.8 (2.7)	290
Spain	3.8 (0.3)	74.2 (3.4)	79.5 (4.2)	46.0 (5.1)	27.2 (3.2)	231
USA	6.7 (0.3)	74.0 (1.5)	77.4 (2.6)	46.4 (3.1)	26.6 (1.9)	646
Argentina	3.7 (0.5)	66.4 (4.7)	55.3 (4.1)	48.9 (3.3)	17.9 (2.7)	170
Total	5.2 (0.1)	64.9 (1.1)	77.9 (1.2)	44.2 (1.6)	22.4 (1.0)	2468
<b>Upper-middle income</b>						
São Paulo, Brazil	10.1 (0.7)	56.1 (3.4)	63.8 (2.7)	41.7 (5.4)	14.9 (2.0)	489
Bulgaria	3.0 (0.3)	50.7 (4.0)	63.3 (3.8)	21.0 (6.3)	6.7 (2.3)	145
Lebanon	4.9 (0.7)	41.0 (3.3)	56.8 (6.9)	30.3 (6.2)	7.0 (1.7)	126
Medellin, Colombia	3.8 (0.4)	51.7 (4.9)	53.5 (7.7)	32.4 (7.3) <sup>c</sup>	9.0 (2.7)	151
Mexico	3.7 (0.3)	58.3 (3.5)	43.4 (4.5)	25.4 (2.9)	6.4 (1.5)	231
Romania	1.5 (0.3)	23.8 (7.3)	90.3 (3.5)	63.0 (14.6)	13.5 (7.5)	40
Total	4.7 (0.2)	52.2 (1.9)	59.6 (1.9)	36.7 (3.5)	11.4 (1.2)	1182
<b>III. Lower-middle income</b>						
Colombia	5.3 (0.4)	49.2 (4.7)	41.3 (6.1)	24.6 (9.4)	5.0 (2.4)	241
Iraq	3.9 (0.4)	17.0 (3.9)	69.7 (2.0)	20.7 (0.7)	2.5 (2.4)	182
Nigeria	1.1 (0.2)	22.3 (3.0)	86.0 (6.3)	0.0 (•)	0.0 (•)	72
Peru	2.7 (0.3)	60.3 (6.1)	50.6 (5.7)	2.8 (2.9)	0.9 (0.9)	99
Beijing/Shanghai, PRC	2.0 (0.4)	39.3 (8.8)	60.3 (12.7)	• (•)	• (•)	87
Total	3.2 (0.2)	34.6 (2.5)	52.6 (3.4)	20.5 (3.4)	3.7 (1.6)	681
<b>IV. Total all countries</b>	4.6 (0.1)	56.7 (1.0)	71.1 (1.0)	41.0 (1.4)	16.5 (0.7)	4331

PRC, People's Republic of China; •, number could not be estimated because of sparse sampling/low responses.

a. See footnotes to online Table DS1 for an explanation of why Colombia appears in two categories.

b. Number meeting criteria for MDD.

c. 20.1 (5.1).

# Undertreatment of people with major depressive disorder in 21 countries\*

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## Background

Major depressive disorder (MDD) is a leading cause of disability worldwide.

## Aims

To examine the: (a) 12-month prevalence of DSM-IV MDD; (b) proportion aware that they have a problem needing treatment and who want care; (c) proportion of the latter receiving treatment; and (d) proportion of such treatment meeting minimal standards.

## Method

Representative community household surveys from 21 countries as part of the World Health Organization World Mental Health Surveys.

## Results

Of 51 547 respondents, 4.6% met 12-month criteria for DSM-IV MDD and of these 56.7% reported needing treatment. Among those who recognised their need for treatment, most (71.1%) made at least one visit to a service provider. Among those who received treatment, only 41.0%

received treatment that met minimal standards. This resulted in only 16.5% of all individuals with 12-month MDD receiving minimally adequate treatment.

## Conclusions

Only a minority of participants with MDD received minimally adequate treatment: 1 in 5 people in high-income and 1 in 27 in low-/lower-middle-income countries. Scaling up care for MDD requires fundamental transformations in community education and outreach, supply of treatment and quality of services.

## Declaration of interest

In the past 3 years, R.C.K. received support for his epidemiological studies from Sanofi Aventis, was a consultant for Johnson & Johnson Wellness and Prevention and served on an advisory board for the Johnson & Johnson Services Inc. Lake Nona Life Project. R.C.K. is a co-owner of DataStat Inc., a market research firm that carries out healthcare research.

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Only a minority of people with MDD receive any treatment, despite MDD being a leading cause of disability

# Relação entre Consumo de Psicotrópico (anual) e ter Diagnóstico (Anual) – CIDI 2.1

	São Paulo			Rio de Janeiro		
	n	anti depressivo	NT	n	anti depressivo	NT
Trans Depressivo	483	15.3	73.5	212	10.3	70.3
Trans Fobico-Ansioso	421	10.0	81.9	181	7.2	80.1
Qualquer transtorno	824	10.3	81.2	374	9.1	77.3

NT: indivíduos com diagnóstico positivo no CIDI e não recebem nenhum tipo de medicação psicotrópica;  
 Qualquer transtorno: combinação de qualquer um dos transtornos mentais avaliados no estudo.